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Highest Achievement in the Polished Nickel Chrome Group

Young Peter Seems Pleased

YOUNG Peter Van Dyke seems pleased with this sheet of polished Allegheny Metal (18-8). But the sheet will have to pass his old man before it is accepted for Ryerson stock—

And Van Dyke, Manager of the Special Steels Division, is difficult to please. No matter how flat, how smooth, and highly polished, he always wants them better—and usually gets what he wants.

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Volume 90 Number 5

STEEL

For forty-eight Years—IRON TRADE REVIEW

PRODUCTION ◆ PROCESSING ◆ DISTRIBUTION ◆ USE

The Week In Steel

WHEN the President designated his principal business relief agency the Reconstruction Finance Corp. his choice of phrase was unusually felicitous, for the word reconstruction is replacing the word depression in the lexicon of business. But reconstruction is not to be confused with recovery; instead, it connotes an arduous task ahead, an objective rather than an accomplishment. It is a wholesome, heartening word, about to become popular. . . . It is reconstruction, apparently, that the United States Steel Corp. is undertaking following the resignation of its president (page 15); new appointments at New York foreshadow far-reaching reorganization, much adjustment of personnel, perhaps co-ordination of sales.

One Roundhouse for All Transportation

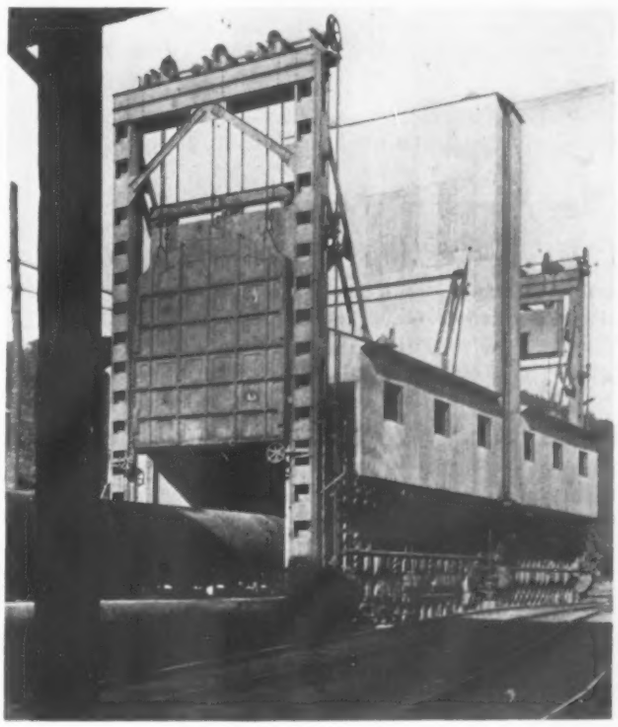
Reconstruction of the railroad plant of the country, possibly leading to integration of all modes of transportation, is within the grasp of railroad executives following the adjustment in wages (page 18) and the certainty of financial assistance from Washington. . . . Whoever has inspected the new automobile models cannot doubt that new motifs and mechanics dominate the automotive industry, and it is not unlikely that Ford may reconstruct (page 24) present ideas of values. . . . Such periods breed panaceas. One group vests great power for reviving consumer confidence in buying in trade association guarantees of value (page 20). Another would declare a 2-year holiday for antitrust laws (page 20), to stabilize competition.

Red Ink Mostly Bookkeeping Chargeoffs

Such stabilization might prove an effectual stiffener of prices, a remedy which a hasty reading of the present crop of financial reports for 1931 indicates is badly needed. This week, as for every week since New Year, further expansion of demand for and production of steel is reported (page 47), but the appearance of more business has only whetted producers' appetite for it and prices have been sacrificed . . . . Financial reports for 1931 only supply a summation of what already was known or suspected (pages 16-17), and to the extent that losses are bookkeeping chargeoffs and not actual operating deficits their ill effects are ameliorated.

Slow Beginning—Strong Ending

Compared with a year ago, steel is getting away to a slower start, but considering that the expansion came a cropper in March, the tortoise-like pace may be preferable. Steelmaking operations averaged 25½ per cent in January, when the rise was 6½ points (page 54); a year ago the average was 43 per cent



Annealing furnace 18 x 18 x 87 feet, reported world's largest, placed in operation at Struthers Wells-Titusville Corp.'s Warren, Pa., plant. Entering is a pressure vessel, 6 x 85 feet

Tablet to memory of William Gleason, founder, Gleason Works, Rochester, N. Y., unveiled recently. Photo also shows Miss Eleanor Gleason, daughter, and George Hunter, oldest employe

and the rise 11 points . . . . Structurals continue a major support of the market (page 52) . . . . Consumption may have risen faster than production, judging from the purchase of 20,000 tons of English pig iron by a Delaware river pipemaker (page 59), heavy receipts of Dutch iron at Providence, R. I., and inroads made by English tin plate on the Pacific coast.

"Buy American" Meets Hoover Favor

A renascence of nationalism appears an accompaniment of the times. . . . The President would free government purchasing officials from the obligation to accept the lowest bid (page 20) if alien material is offered. . . . Reinforcing bar sellers propose a guard against substitution of bessemer for open-hearth steel (page 20) when the latter is specified. . . . British steel producers, writhing under engulfing imports from the Continent, are encouraged (page 68) by the possibility of a 10 per cent tariff. Incidentally, for the first time in history, Great Britain in 1931 imported more steel—by 871,341 tons—than she exported.

Foreign Trade Balance Is Whittled

For the United States, the balance of trade in iron and steel continued favorable in 1931, but by a narrowed margin (page 21). Final statistics for December place 1931 imports at 420,260 tons, exports at 965,268 tons. . . . When iron and steel scrap dealers meet in Washington in March they will plan heavier exports (page 20), perhaps with government aid. . . . Japan, whose Manchurian venture augmented her reserves of iron ore, is experimenting with 80-pound steel rails 110 feet long (page 20), a new standard. . . . A Japanese bureau on nickel is being established (page 20) by an American producer.

The Right Steel for the Right Place

The rigid inspection of foreign bars demanded by reinforcing interests is not to be construed as a badge of inferiority for bessemer steel. By pouring two successive heats into the same ladle, bessemer steel of high uniform quality is produced (page 39) by an American interest. . . . A new steel containing chromium and vanadium and offering an unusual combination of properties for nitriding has been developed (page 37); when nitrided with ammonia a comparatively heavy case results. . . . A few more of these steels would prod the movement of Lake Superior iron ore (page 19), which in 1931 declined to 23,496,228 tons, the smallest save 1921 in 27 years. Henry Ford, by increasing his shipments, went against the trend.

One Length Constitutes a Pipeline

"The longest single piece of pipe ever made without circumferential welds" is the claim of a Youngstown mill for a 285-foot length of 8-inch pipe (page 18) formed from a single continuous length of plate. . . . Worcester, Eng., is laying a street of iron plates, with antiskid pattern (page 20), on a concrete base. . . . New uses for flat-rolled steel exhibited at the Heating and Ventilating show at Cleveland (page 20) feature air-conditioning equipment for homes. . . . Fabricating costs are said to be notably reduced by an eastern producer by subjecting stainless steel rods, wire and strip to an annealing process (page 39).

Electric Eye Watchdog of the Mill

No longer are random lengths of bars relegated to the scrap pile, for photoelectric tubes insure cutting, at a speed of 15 miles per hour (page 38), sufficiently close to meet the most exacting specification. . . . Integration of steel castings plants with other metal parts plants, and integrated merchandising and selling were prescribed for steel founders (page 34) at their recent convention at Chicago. . . . When the American Institute of Mining and Metallurgical Engineers meets in February (page 35), a symposium on gases in metals will be featured.

Taylor Moving Swiftly in Reorganizing Steel Corp.

NEW YORK—Third of the major objectives formulated by Myron C. Taylor after he became chairman of the finance committee of the United States Steel Corp. in December, 1927, received impetus last week with the first adjustment in personnel following the resignation of James A. Farrell as president, effective April 18.

William J. Filbert, for years comptroller of the Corporation, becomes

A. W. Vogt

vice chairman of the finance committee, thereby being relieved of much detail and freed for closer association with Mr. Taylor in the various phases of management. Succeeding Mr. Filbert as comptroller is H. L. Austin, while succeeding Mr. Austin as senior assistant comptroller is A. W. Vogt.

Incidentally, it can be stated quite positively that Mr. Taylor will not become president. Unless pressure is brought to bear, he will continue in his capacity of chairman of the powerful finance committee and general manager of the Corporation.

Present indications are that the next president of the Corporation will be selected from the ranks of operating executives—not necessarily from within the Corporation, but probably so.

First of Mr. Taylor's objectives was a thorough study of the capital structure of the Corporation, which culminated in the sale of 1,016,605 additional shares of common stock and retirement of bonded indebtedness of the Corporation and some subsidiaries totaling $303,111,000, which enormously reduced fixed charges.

Second was a study of physical properties, which resulted in abandonment of certain old mills, adoption of a definite schedule of improvements, acquisition of the Columbia Steel Corp. and Atlas Portland Cement Co. and sale of the Gary Heat, Light & Water Co.

Third was an investigation of personnel, one outcome being adoption of the voluntary retirement plan at age 65 and compulsory retirement at 70. This pension plan can be depended upon to cause vacancies to be filled from the ranks of younger executives.

A pronounced feature of Mr. Taylor's procedure to date is that he plans carefully, then acts rapidly.

William J. Filbert

Now that personnel changes have begun, action along this line may be expected to develop quickly. It is not believed that Mr. Taylor will wait for situations to develop but will take the initiative, and in the next few months many changes may be looked for.

It is expected that questions of personnel changes will be settled in all cases as quickly as the management makes up its mind on the wisest course to pursue. In some cases, it is believed, these changes will assume the proportions of reorganization. It also is anticipated that there may be some redistribution of responsibilities.

That there will be further co-ordination between subsidiary companies appears likely. Formerly the subsidiaries operated largely as individual companies. Today there is considerable co-operation between them and it is thought that this tendency will become more pronounced.

For instance, it is considered as not unlikely that eventually the subsidiaries may maintain joint sales organizations in the different districts, in place of the separate organizations which each now maintains in each important city.

While it is too early to foretell, at a time when they are under consid-

Blank & Stoller

H. L. Austin

eration, what changes will be made, it may be said that the Corporation is far from a hide-bound institution. Precedents have no prestige; every phase of the business is being scrutinized, from the standpoint of true values as of today and of the future, but not of the past.

Fortunately, the pronounced disposition of the present management to act with dispatch makes it seem quite certain that the period of transition now well under way will be of comparatively short duration.

Mr. Filbert began his business career in 1881 in the purchasing department of the Chicago & North Western railroad. In 1898 he became assistant auditor of the Federal Steel Co., and later was made auditor of the company. Upon formation of the United States Steel Corp. in 1901 and aquisition of the Federal company, he became assistant comp-

(Concluded on Page 18)

U. S. Steel Fourth Quarter Loss a Record; Surplus Falls

UNITED States Steel Corp., New York, suffered an operating loss of $6,353,148 in 1931. This compares with a profit from operations of $93,520,015 in 1930.

After the payment of preferred and common dividends in 1931 there was a deficit of $49,236,882, comparing with a surplus after all dividend payments of $18,836,097 in 1930.

However, the $6,353,148 operating loss of 1931 was ameliorated by special income of $19,319,893, realized from the sale of its utility plant at Gary, Ind. Thus a net profit of $12,966,745, or $3.60 a preferred share, was reported.

Therefore, nothing was earned on the common stock last year; in 1930 earnings amounted to $9.12 a common share; in 1929, $21.19.

Declares 50-Cent Dividend

The Corporation had to dip into surplus to the sum of $49,236,882 for the payment of regular preferred dividends and twice-reduced payments on the common stock in 1931.

As its initial 1932 dividend policy the Corporation not only has declared its unchanged preferred dividend of $1.75 a share but also has declared a 50-cent payment on the common, payable March 30 to record Feb. 29. The latter is thereby reduced to $2 annually from the previous $4 mark.

This common dividend, according to the statement issued by the board of directors, will be continued only upon an improvement in the Corporation's volume of business and earnings.

During the fourth quarter of 1931 the Corporation showed its greatest quarterly operating loss, or $9,374,759. Special income apportionment of $4,997,961 left net operating loss at $4,376,798.

Net earnings for the last three months of 1931, which declined successively, totaled $3,970,920. This compares with a figure of $23,083,791 in the same 1930 quarter.

J & L Loss Reported

Jones & Laughlin Steel Corp., Pittsburgh, and subsidiaries report net loss of $2,283,459 after interest, depreciation, depletion, etc., for 1931. This compares with net profit of $9,093,287 in 1930, equal after preferred dividends to $8.64 a share on 576,320 common shares.

Net loss for the fourth quarter of 1931 was $1,549,948, against net loss of $934,352 in the third quarter and net profit of $283,754 in the fourth quarter, 1930. Profit and loss surplus as of Dec. 31, 1931, was $67,291,440 against $74,749,352 at the end of 1930. Regular quarterly preferred dividend of $1.75 was declared, payable April 1 to record March 11.

Inland Earns $1.05 a Share

Inland Steel Co., Chicago, reports net profit of $1,263,560 for 1931 after depreciation, interest and estimated federal taxes, equal to $1.05 a common share. This compares with earnings of $6,498,967, or $5.42 a share in 1930. Net earnings from operations plus income received in interest was $6,041,091 in 1931. Year's deductions totaled $4,715,491, leaving net of $1,263,560 for the year. The common dividend rate of $2 has been reduced to a $1 annual basis with the declaration of a quarterly 25-cent payment March 2 to common shareholders of Feb. 13 record.

□ □ □

A. M. Byers Co., Pittsburgh, reports for twelve months ended Sept. 30, 1931, net profit of $81,587 after depreciation and depletion. Dividends paid on preferred stock plus adjustments in regard to properties and provisions against book value of securities held resulted in a decline in surplus of $2,008,297, leaving a balance on Sept. 30, 1931, of $3,330,285. Consolidated balance sheet shows current assets of $4,136,978, against current liabilities of $250,579. Pipe mill operations during the year averaged about 25 per cent. Net profit of the A. M. Byers Co. alone was $203,468, but Orient Coal & Coke Co. had a net loss of $121,881.

□ □ □

Michigan Steel Tube Products Co., Detroit, reports net loss of $114,113 for 1931, compared with net profit of $41,377 in 1930.

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Acme Steel Co., Chicago, reports net 1931 profit of $372,027, equal to $1.08 a share. In 1930 the company showed a net of $940,949, or $2.74 a share.

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Gulf States Steel Co., Gadsden, Ala., reports net loss of $193,009 for the quarter ended Dec. 31, compared with net loss of $614,046 in the corresponding quarter of 1930.

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United Engineering & Foundry Co., Pittsburgh, has declared the regular quarterly dividend of 75 cents on the common stock and 1¾ per cent on the preferred, both payable Feb. 12 to record Feb. 2.

□ □ □

Joseph T. Ryerson & Son, Inc., Chicago, reports net loss for 1931 of $424,452 after taxes, depreciation, inventory adjustments, interest and a write-down of $124,982 on government and other securities. This compares with net profit of $827,826, or $2.06 a share in 1930.

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United States Pipe & Foundry Co., East Burlington, N. J., reports preliminary net profit of $1,012,215 for 1931, equal after preferred dividends to 49 cents a common share. This compares with earnings of $3.42 a common share in 1930. Four regular quarterly dividends of 50 cents have been declared, covering payment for the entire year on the issue.

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Virginia Iron, Coal & Coke Co., Roanoke, Va., reports net profit of $25,036 for the fourth quarter of 1931 and net profit for the entire

Steel Corporation's Quarterly Report Summarized

	Fourth Quarter 1931	Third Quarter 1931	Fourth Quarter 1930
Total earnings	$3,970,920	$9,181,091	$23,083,791
Less depreciation, depletion, etc.	11,988,190	11,792,834	13,003,439
Net income	†8,017,270	†2,611,743	10,080,352
Less bond interest	1,357,589	1,362,092	1,409,690
Balance	†9,374,759	†3,972,835	8,670,662
Add special income*	4,997,961	7,160,966	3,695,426
Total	†4,376,798	3,187,131	12,366,088
Dividends			
Preferred	6,304,920	6,304,919	6,304,920
Common	4,351,697	8,704,583	15,206,065
Surplus	†15,033,415	†11,822,371	†9,144,897

*Quarterly apportionment of net interest on federal tax refunds.
†Deficit.

year of $110,353. This compares with $34,625 loss in 1930.

□ □ □

Dominion Bridge Co., Montreal, Que., reports operating profit of $2,164,852 for the year ended last Oct. 31, compared with $2,383,813 in the previous year. Net profit of $1,657,817 equaled $3.22 a common share.

□ □ □

Fostoria Pressed Steel Co., Fostoria, O., reports net profit of $65,521 after all charges including provision for federal taxes in 1931, equal to $2.38 a share. This compares with net profit of $49,376, or $1.78 a share in 1930.

Bethlehem's Financial Statements Compared

	Fourth Quarter 1931	Third Quarter 1931	Fourth Quarter 1930
Total income	$3,485,700	$3,954,960	$7,418,383
Less interest	1,842,365	1,930,181	1,628,090
Balance	1,643,335	2,024,779	5,790,293
Less depreciation	3,420,273	3,526,781	3,499,293
Net income	†1,776,938	†1,502,002	2,291,000
Preferred dividend	1,645,000	1,750,000	1,750,000
Common dividend	.....	1,600,000	4,800,000
Total	1,645,000	3,350,000	6,550,000
Deficit for period	3,421,938	4,852,002	4,259,000

†Deficit.

Bethlehem Steel Deficit Mounts

BETHLEHEM Steel Corp., Bethlehem, Pa., reporting net operating loss of $1,776,938 for the fourth quarter, thereby earned $115,745 from operations during the entire year 1931.

This figure was before payment of regular preferred dividends and 1931 payments on the common stock, which was thus equal to earnings of 12 cents on the preferred stock, against earnings of $5.26 a common share in 1930, over the preferred requirement in that year.

Gross sales and earnings for 1931 aggregated $186,541,195, compared with $258,979,253 for 1930. Total amount of new business booked during 1931 amounted to $150,077,099, against $239,934,505 for 1930.

Cash expenditures for 1931 additions and plant and property improvements aggregated $12,699,897. Estimated cost to complete construction authorized and in progress as of Dec. 31, 1931, was $6,905,000.

Though declaring the regular quarterly disbursement on the preferred stock, directors decided not to declare any dividend on the common stock in view of present conditions. A $2 yearly rate was paid in the previous quarter.

The consolidated income account for the fourth quarter of 1931 shows total income of $3,485,700, which less interest charges of $1,842,365, left a balance of $1,643,335. Depletion and depreciation charges of $3,420,273 resulted in the operating loss of $1,776,938. This figure compares with operating loss of $1,502,002 in the third quarter and operating profit of $23,843,406 for all 1930.

Operations of Bethlehem Steel Co. averaged 30 per cent for the fourth quarter, two points higher in the third, and 38.6 per cent for the entire year. By comparison, operations averaged 31.7 for 1930. At present operations are at 21 per cent. Eugene Grace, president, said there had been no improvement in business as yet and that shipments in January were lower than in December.

Quarterly dividend of $1.75 on the preferred stock was declared payable April 1 to record of March 4.

Monthly Earnings of United States Steel Corp.

	1931	1930	1929
January	$6,118,411	$15,404,359	$18,759,098
February	6,155,548	16,107,410	19,080,941
March	7,190,877	18,103,628	22,265,342
First quarter	19,464,836	49,615,397	60,105,381
April	5,135,499	16,113,583	22,361,428
May	4,182,732	16,570,790	25,604,641
June	4,499,293	14,376,931	24,029,392
Second quarter	13,817,524	47,061,304	71,995,461
July	3,661,751	13,479,870	24,303,058
August	2,960,293	13,000,496	24,687,088
September	2,559,047	11,514,933	21,183,566
Third quarter	9,181,091	37,995,299	70,173,713
October	1,690,527	10,943,449	22,066,325
November	1,248,689	7,949,384	18,367,105
December	1,031,704	4,190,958	16,014,467
Fourth quarter	3,970,920	23,083,791	56,447,897
Year	$46,434,371	$157,755,791	$258,722,453

Business Is Better

DOMINION Steel & Coal Co. has started four open-hearth steel furnaces at Sydney, N. S., also its blooming and billet mill. The working force has been brought up to 750 men, 3 to 4 days a week.

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Inland Steel Co.'s new strip-plate mill at its Indiana Harbor, Ind., works, being completed, is offering employment to 375 men.

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Resumption of work at some departments of the Reading Iron Co., Reading, Pa., recalled a number of employes.

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Moore Steam Turbine Co., Wellsville, N. Y., has received a $300,000 order from the government, on which it will begin production at once.

□ □ □

Maytag Co., Newton, Iowa, power washing machines, is operating more than 75 per cent, approximately the same schedule that has prevailed at the company's plant since the middle of October.

□ □ □

Minneapolis, St. Paul & Sault Ste. Marie railroad has started 284 men at its locomotive shops in Minneapolis. This makes 450 shopmen the road has recalled so far this year. On Jan. 4 about 170 men were re-employed in the coach repair department.

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Baldwin-Southwark Corp., Southwark Foundry & Machine Co. division, Eddystone, Pa., is operating at a high rate of capacity. Testing equipment for laboratories is in demand. The diesel engine department

is at a normal rate. A large contract for hydraulic presses for the manufacture of 40-foot steel pipe is nearing completion.

Taylor Speeds Adjustment In Steel Corp. Personnel

(*Concluded from Page* 15)

troller, and in 1902 was made comptroller, the position he has held since. He has been a director of the Steel corporation since 1920 and a member of the finance committee since 1922.

Mr. Austin, now comptroller, has been affiliated with the industry 35 years. In 1897 he went to Cleveland as assistant manager of the Crescent Steel & Tin Plate Co. Upon its formation in December, 1898, he became affiliated with the American Tin Plate Co., then of Chicago, serving as general bookkeeper. In 1904, when the company combined with the American Sheet Steel Co. as the present American Sheet & Tin Plate Co., Mr. Austin became auditor. In 1914 he became senior assistant comptroller of the United States Steel Corp.

Mr. Vogt, who is now senior assistant comptroller, was born in 1879 in Blaubeuren, Germany. His family came to the United States and settled in Albany, N. Y., in 1882 and in 1883 moved to Chicago. Mr. Vogt started business in the accounting department of Illinois Steel Co. in March, 1894, and in 1901 became identified with the Steel corporation. From then until 1914 he was chief statistician. Since 1914 he has been assistant comptroller.

Receivers Are Asked

Lebanon, Pa.—Appointment of receivers for the Wrought Iron Co. of America is asked in a petition filed here in the court of equity by John D. Brown, a stockholder and former superintendent of the company. The petition alleges that interest payments on the bonded indebtedness are overdue and that there was an operating deficit of $116,259 in eight months of last year.

Byers Surrenders Option

A. M. Byers Co., Pittsburgh, has given up the option it held recently on the plant of the Canonsburg Steel & Iron Works, Canonsburg, Pa., where it proposed to produce wrought iron sheets. The company continues to sell this material, however, obtaining its supplies from other mills.

The Business Week In Washington

FORMAL announcement of the official start of the Reconstruction Finance Corp., the President's chief relief agency for business, is expected daily. Both houses of congress have approved the initial appropriation of $500,000,000; the remaining $1,500,000,000 capital is to be raised by the sale of debentures. First organization to solicit a loan is the Wabash railroad, now in receivers' hands. Up to Jan.30 the President had named two of the three Democratic directors of the Corporation. With Charles G. Dawes as president and Eugene Meyer Jr. as chairman, it was practically ready to function.

President Hoover has been at some pains to make clear that through his various emergency measures he plans to liquify credit rather than initiate inflation of the currency. Through Ogden L. Mills, under-secretary of the treasury, the administration has suggested that banks no longer need to be so liquid, but can safely increase their loans.

Gas Products Association Plans Sales Promotion

Chicago—Development of a campaign to assist members in conducting market surveys, and to analyze sales possibilities was started at the eighteenth midwinter convention of the Gas Products association here Jan. 22-23. Much time was devoted to planning sales promotion programs.

Lloyd Keenan, Webb-Linn-Page Inc., Chicago, pointed out that welding is used to only 20 per cent of its possibilities, and that an approximately 80 per cent virgin market exists. C. T. Price, Compressed Industrial Gases Inc., Chicago, explained a new gas cylinder rental plan sponsored by the association and by which the manufacturers' investment is protected.

A. J. Fausek, Modern Engineering Co., St. Louis, presented a report of a special technical committee on the latest developments in the much discussed high-speed welding procedure, including a proposed plan which is aimed to enable members to protect their existing business and to enter new fields.

Officers were elected as follows: President, Ellsworth L. Mills, Bastian-Blessing Co., Chicago; first vice president, Mr. Fausek; second vice president, W. H. Wallace, Electrox Co., Peoria, Ill.; treasurer, A. C. Krein, Bastian-Blessing Co.; secretary, Mr. Keenan; assistant secretary, Mary Redden, Chicago; and counsellor, Earl M. Evleth, Bastian-Blessing Co.

Deadlocked on Rail Wages

Chicago—Railroad executives and labor leaders were deadlocked Jan. 29 on a wage reduction, but a final agreement was expected. Executives refused to agree to a 6½ per cent cut for a year, this being one of four offers by labor leaders.

NOT A PIPE LINE, BUT A SINGLE PIECE OF PIPE: It is 8 inches in diameter, 285 feet in length, and the Republic Steel Corp., Youngstown, O., claims it is "the longest ever produced anywhere in the world, without circumferential welding." The pipe was made recently at the Republic corporation's electric weld mill from a single continuous length of plate. "It was formed cold from the flat plate," says the corporation, "the weld being made by the resistance method without the addition of foreign metal, and having the same strength as the body of the pipe. The result is a product free from scale, with exceptionally uniform wall thickness and perfect concentricity"

Year's Iron Ore Shipments Third of 1929 Tonnage

ONE and a half billion tons of Lake Superior iron ore has been consumed by the iron and steel industry since shipments from that region began 85 years ago. A half billion tons was removed in the first 65 years, a billion in the last 20.

In these 20 years, with an annual average of approximately 50,000,000 gross tons, a season's shipments have ranged from a minimum of 22,798,349 tons to a maximum of 66,658,466, conforming fairly close with the trend in general industrial operations. The normal figure today probably is 51,000,000 tons, though before scrap cut heavily into the use of ore mine operators considered 55,000,000 tons normal.

Official mine reports to the Lake Superior Iron Ore association show that last year the total was 23,496,228 tons, lowest in 27 years, except 1921 with 22,798,349 tons.

The tonnage in 1931 was less than half the 47,187,661 in 1930, and little more than one-third the 66,157,359 tons in 1929. As a result the annual average in the past five years was lower than in the preceding 15.

Reduced Two Consecutive Years

It was the fourth time in Lake Superior history when shipments declined two consecutive years. In only one instance have they moved down three successive years—1917, 1918 and 1919. Precedent favors an increase in 1932, though more important is the fact stocks at lower lake ports and at furnaces now are a million tons less than a year ago, with prospects favorable for a rise in consumption.

Mine records for 1931 indicate how operators combatted effects of unemployment by spreading work. More mines were active at some time during the year, and production therefore undoubtedly was larger, than if there had been no need to relieve distress among miners.

In 1929, a peak year, shipments were made from 171 mines; in 1930, from 160; and in 1931, from 133. In 1929 the average per mine was 386,922 tons; in 1930, 294,422; and in 1931, 176,663 tons. Thus, the number of mines active last year was reduced only 22 per cent from 1929, whereas the average output was cut 54 per cent.

In 1930 ten mines, each of them shipping a million to 3,000,000 tons, accounted for 17,000,000 tons, or 36 per cent of the total. All of these mines are great open pits, with comparatively low operating cost, and at least some of them might have been kept going at a faster rate than scheduled for them in 1931. However, only two mines last year shipped more than a million tons, and the total for the ten largest shippers was held to the same proportion in relation to the whole as in the preceding year.

All but one of the ten mines is operated by the Oliver Iron Mining Co., United States Steel Corp. subsidiary. This company, reporting 11,398,692 tons for 1931, curtailed shipments less drastically than the independents, for it represented 48 per cent of the total. In 1930 its portion was 44 per cent; in 1929, 42 per cent.

Ford Increases Shipments

The Ford Motor Co. increased shipments from its two mines to 327,407 tons, 35 per cent over 1930. This tonnage was more than half of that shipped by some of the important steel companies from their properties. It placed the company eleventh in the list of shippers. Its Blueberry mine (so named because Henry Ford found some blueberries when he strolled over the site) shipped 232,970 tons compared with 172,552 tons in 1930, and 42,741 tons in 1929. This is the company's "model mine," an underground property on the Marquette range which it developed in 1927 and 1928.

The Ford company's Imperial mine, also an underground property on the Marquette range, acquired from other interests, shipped 94,437 tons, compared with 68,976 tons in 1930 and 102,850 tons in 1929.

Three new mines reached the shipping stage last year. They are the Wheeling, Wheeling Steel Corp., Mesabi range, which shipped 38,810 tons; Alstead, Manganiferous Iron Co., associated with Butler Bros., Cuyuna

(*Concluded on Page* 37)

"Sinter Dried", a New Beneficiated Ore

THIRTY-FOUR per cent of the iron ore shipped from the Lake Superior district in 1931 passed through some process at the mines for improving grade or structure, in contrast with 39 per cent in 1930.

"Sinter dried" is a brand new classification. The fines of a certain ore on the Cuyuna range are screened out and sintered. The hot sinter then is mixed with the coarse, crude ore, in the proportion of about 40 per cent sinter and 60 per cent crude. By this means the moisture in the crude ore is considerably reduced. Shipments of "sinter dried"—the composite—amounted to 91,301 tons; ordinary sintered ore, 98,982 tons; ordinary dried, 67,084 tons; washed, 3,172,648 tons; jigged, 267,787 tons; crushed and screened, 4,368,950 tons—a total of 8,066,752 tons.

LAST LINK FORGED IN INTERLAKE ORE TRAFFIC: In 1931, first year of its operation, 295,592 tons of iron ore was shipped through the new Welland canal, connecting Lake Erie and Lake Ontario. Of this, 255,814 tons was Lake Superior ore shipped to Lake Ontario; 39,778 tons foreign ore brought to Lake Erie. Steamer WESTMOUNT, *Canada Steamship Lines, is locking through with 9000 tons of Lake Superior ore*

Suggests Foreign Steel Be Inspected

CHICAGO—Members of the Concrete Reinforcing Steel institute are being advised by the institute headquarters at Chicago to advocate inspection to determine whether imported European reinforcing bars are open-hearth or bessemer steel, upon projects where open-hearth material is specified. Says the institute:

Where a reinforcing bar subcontract is awarded to a firm which is in a position to furnish either domestic or European steel, and where it is feared that an improper substitution of foreign steel will be made, our members should communicate directly with the institute, giving us the name of the project, the name of the general contractor who might furnish the foreign steel and the name of the fabricator having the bar contract. In this case the institute will communicate with the federal authorities and lodge a proper protest which, we believe, will prevent any substitution of the European steel for American made bars.

Most of the federal inspection is done by the navy department through a co-operative arrangement with other federal departments.

Hoover for "Buy American"

Washington — President Hoover announced Jan. 26 he will ask congress to pass legislation giving government departments authority to purchase materials and supplies from American companies even if foreign companies are lower.

Will Establish Japanese Bureau on Nickel

New York—Plans for establishment of a Japanese Bureau of Information on Nickel were announced here Jan. 27 at a luncheon of the executive committee of the Japanese society in honor of James A. Rabbitt, consulting engineer for the International Nickel Co., who leaves shortly for Tokio to act as advisor in the formation of the bureau.

Important scientific and technical data relating to nickel, its products and their applications in the industry will be collected and disseminated. Expert metallurgists will directly serve the Japanese industry by assisting in the practical application of this information.

The proposed Japanese bureau will be the latest addition to a group which includes the Nickel Information Bureau of London, the Centres d'Information du Nickel of Paris and Brussels, the Nickel-Informationsuro of Frankfort-am-Main, the Centro d'Informatzioni del Nickel of Milan, and the Development and Research department of the International Nickel Co., New York.

Mr. Rabbitt has spent 16 of the last 29 years in Japan as American commercial attache, as representative of American engineering and industrial enterprises and in directing and editing a comprehensive survey of principal industries in Japan.

Show Reveals Wider Use Of Steel and Welding

Air conditioning equipment for installation in factories requiring close control of atmosphere and in auditoriums, theaters, hotels and other large meeting places, comprised a principal line of industrial equipment exhibited at the Second International Heating and Ventilating exposition held in Cleveland, Jan. 25-29.

This exposition, in the Auditorium Annex, was arranged in conjunction with the thirty-eighth annual meeting of the American Society of Heating and Ventilating Engineers.

More than 225 exhibitors displayed equipment pertaining to heating and ventilating and related lines, much of it intended for domestic rather than industrial use. The casual observer was impressed with the growing use of rolled steel products in the manufacture of equipment and the larger application of welding as a fabrication method. Several manufacturers of steel products were represented in the exposition.

Willis H. Carrier, chairman of board, Carrier Engineering Corp., Newark, and retiring president of the American Society of Heating and Ventilating Engineers, was awarded the society's F. Paul Anderson gold medal for his scientific achievements in his field. He developed the spray-type air washer and spray-type air conditioning machine on which the science of air conditioning rests.

Would Guarantee Quality

American Standards association, New York, stresses the economic importance of certification and labeling activities in the United States, contending that marketing of industrial products can be stabilized by means of industry-wide guarantees administered by trade associations and professional societies. Over a billion dollars worth of manufactures of 50 industries was sold in 1931 on some plan of guaranteeing the quality, the association states.

Uniflow Mfg. Co., Erie, Pa., maker of pumps and water softeners, has placed its works on a full 5½ day week schedule.

What's Happening In Business World

WORCESTER, Eng., plans an experimental street of iron plates, reported by American Consul G. A. Makinson at Birmingham, Eng., as follows: "Plates to be triangular, 10 inches on a side, facing studded with diamond-shaped pattern, on 8-inch concrete base covered with ¼-inch bitumen layer on which plates are set, with ¼-inch of bitumen between plates."

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Japanese department of railways has requested the government steelworks at Yawata to roll a test lot of rails of a new large size for Japan—110 pounds and 80 feet—according to the department of commerce.

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If the interstate commerce commission proposal for refunding excess earnings taken by the recapture clause of the Transportation act is accepted, the United States Steel Corp. will benefit by $6,306,000, equal to 72 cents a common share. This sum was exacted from Steel corporation railroads.

Will Talk Scrap Exports

Development of foreign markets for iron and steel scrap will be a principal topic at the annual convention of the Institute of Scrap Iron and Steel Inc. at Washington, March 8-10. Luther Becker, chief of the iron and steel division, department of commerce, will address a special session on this subject. In 1929, about 550,000 tons of scrap were exported, and it is noted that the new Reconstruction Finance Corp. permits loans to export corporations.

Antitrust Laws a Drag

Charles F. Abbott, executive director, American Institute of Steel Construction Inc., New York, reiterated his belief a 2-year moratorium on the antitrust laws would permit trade associations to assist in an effective stabilization program, in addressing the Southern Structural Steel Board of Trade at Birmingham, Ala., Jan. 25. The evident improvement in the general financial and business situations suggests that the "worst of our difficulties are behind us," said Mr. Abbott.

Automatic Voting Machine Co., Jamestown, N. Y., has received an order for 800 voting machines from Philadelphia, cost being $875,416. The Jamestown plant will operate at capacity at least until April 1.

Lows Predominate in Steel Exports and Imports

EXPORTS of iron and steel products, declining 2293 tons from November, totaled only 57,263 tons in December. Imports dropped to the low level of 25,812 tons in December, 8846 tons under November and the smallest received in 1931 or in a number of years, according to the iron and steel division, department of commerce.

Export trade for all 1931 totaled to only 965,268 tons, and was 1,016,717 tons short of 1930. Only 3.9 per cent of the steel produced in the United States in 1931 flowed into export channels.

Some 117,231 tons under 1930, the import trade in 1931 for steel products at 420,260 tons was the lowest in several years.

From the standpoint of the trend manifested by the individual classes of products, however, a gain was registered in December exports with 29 of the 46 groups of products showing increases. In point of tonnage, black sheets led all other products with exports amounting to 6324 tons, Argentina and Canada being the chief purchasers. Scrap was next with a total of 5973 tons, Japan accounting for 65 per cent.

Exports in December increased only to the Far East and Africa. In the trade of individual markets, Canada, as usual, led all others, her 17,187-ton total accounting for 30 per cent of all shipments. Japan, with 9490 tons, accounted for 16.5 per cent of the December trade.

Decreases in 18 of the 34 classes of products included in the statistics of the import trade were sufficient to bring about the 8846-ton reduction which marked that trade in December of 1931.

IMPORTS AND EXPORTS
Gross Tons

	——1931——		——1930——	
	Imports	Exports	Imports	Exports
Jan.	40,781	92,745	43,624	223,766
Feb.	28,045	91,212	43,326	197,225
March	40,401	109,512	56,618	238,329
April	47,872	101,081	53,686	208,604
May	37,176	91,407	54,315	195,425
June	37,819	75,585	48,953	159,273
July	37,190	84,466	39,083	131,580
Aug.	30,139	73,338	35,405	150,922
Sept.	30,966	69,768	40,285	131,045
Oct.	29,401	59,335	38,344	131,845
Nov.	34,658	59,556	43,098	111,979
Dec.	25,812	57,263	40,754	101,992
Total	420,260	965,268	537,491	1,981,985

ORIGIN OF DECEMBER IMPORTS
Gross Tons

	Steel Ingots, blooms	Steel scrap	Cast iron pipe	Steel bars
Austria	13	.....	.....	.....
Belgium	1,384	.....	2	1,926
Canada	1	340	1	4
Czechoslov.	.....	.....	.....	1
Dominican Rep.	.....	1	.....	.....
France	761	.....	18	1,548
Germany	115	.....	.....	893
Sweden	15	.....	.....	166
Unit. King.	12	.....	.....	20
Total	2,301	341	21	4,564

IMPORTS OF IRON AND STEEL PRODUCTS
Gross Tons

Item	Dec. 1931	Nov. 1931	Dec 1930
Pig iron	1,039	8,805	13,881
Sponge iron	.....	.....	.....
Ferromanganese and spiegeleisen*	917	3,770	1,111
Ferrochrome†	.....	.....	.....
Ferrosilicon‡	8	46	274
Scrap	341	933	1,222
Ingots, blooms	2,301	1,866	1,926
Concrete bars	2,030	1,597	3,369
Hollow bar, drill steel	51	31	48
Merch. steel bars	4,564	2,949	3,813
Iron slabs	1	.....	.....
Iron bars	33	40	203
Wire rods	662	624	684
Boiler, other plate	22	1	.....
Sheets, skelp	235	274	2,082
Tin plate	16	30	6
Structural shapes	5,646	3,703	5,041
Sheet piling	.....	.....	.....
Rails, fastenings	285	82	198
Cast pipe, fittings	21	145	1,889
Welded pipe	407	1,098	375
Other pipe	159	1,109	1,502
Barbed wire	1,675	2,072	377
Round wire	118	202	115
Flat wire, strip	96	39	41
Wire rope	165	177	180
Other wire	24	23	35
Hoops and bands	4,348	4,374	1,777
Nails, tacks, staples	335	369	479
Bolts, nuts, rivets	5	92	37
Castings, forgings	60	101	87
Total	25,812	34,658	40,754

*Manganese content.
†Chromium content.
‡Silicon content.

DESTINATION OF DECEMBER EXPORTS
Gross Tons

	Galv. steel sheets	Tin, terne plate	Black sheets	Steel bars
Argentina	10	560	2,650	3
Brazil	133	138	63	12
Canada	678	83	2,456	366
Cent. Am.	119	.....	5	60
Chile	21	136	.....	12
China	183	267	215	352
Colombia	209	34	46	72
Cuba	191	163	8	11
Dutch E. Ind.	132	183	1	.....
France	2	.....	421	.....
Japan	105	1,874	128	46
Java	27	147	.....	.....
Mexico	75	206	88	9
Norway	77	.....	8	8
Panama	40	.....	4	37
Philippines	1,161	385	.....	18
Peru	182	404	1	33
Unit. King.	.....	1	86	1,569
Uruguay	25	505	61	.....
Venezuela	43	.....	6	15
Total	3,471	5,820	6,324	2,605

ORIGIN OF DECEMBER IMPORTS
Gross Tons

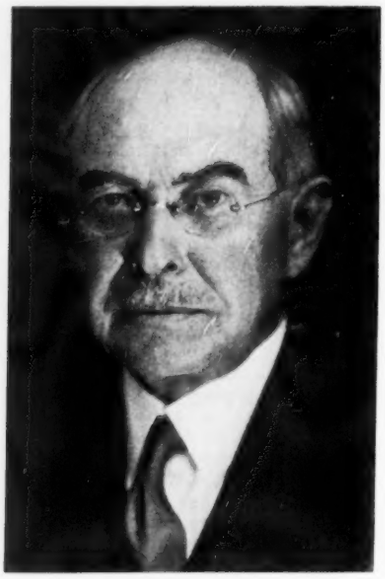
	Iron ore	Pig iron	Manganese	Ferromanganese
Australia	4,023	.....	.....	.....
Brit. Ind.	.....	491	2,470	.....
Brazil	.....	.....	2,162	.....
Canada	1,040	.....	.....	680
Chile	22,639	.....	.....	.....
Cuba	11,000	.....	.....	.....
France	.....	.....	.....	22
Kwantung	.....	118	.....	.....
Netherland	.....	307	.....	.....
Italy	.....	.....	.....	36
Norway	27,635	2	.....	.....
Soviet Russia	23,550	.....	.....	.....
United King.	.....	121	3,123	179
Total	89,887	1,039	7,865	917

EXPORTS OF IRON AND STEEL PRODUCTS
Gross Tons

Item	Dec., 1931	Nov.,, 1931	Dec., 1930
Pig iron	406	717	474
Ferromanganese, spiegeleisen	53	2	.....
Scrap	5,973	6,158	11,132
Ingots, blooms	92	4,299	319
Iron bars	30	48	128
Steel bars	2,605	5,590	2,932
Alloy steel bars	88	136	435
Wire rods	2,162	1,353	3,013
Boiler plate, not fabr.	1,216	1,407	4,396
Skelp	2,265	2,201	3,248
Iron sheets, galv.	235	131	234
Steel sheets, galv.	3,471	1,993	4,799
Steel sheets, black	6,324	5,263	19,088
Iron sheets, black	378	217	714
Hoops, bands	1,616	1,275	1,824
Tin, terne plate	5,820	6,528	8,760
Shapes, not fabr.	4,368	3,457	7,515
Shapes, plates fabr.	764	506	4,096
Metal lath	152	142	350
Frames, sashes, sheet piling	928	1,385	2,366
Rails	4,137	2,214	2,546
Rail fastenings	366	1,240	1,085
Boiler tubes	346	335	765
Casing, pipe, seamless and welded	1,008	717	4,160
Malleable - iron screwed pipe fittings	251	225	903
Iron screwed pipe fittings	80	48	339
Iron pressure pipe and fittings	726	182	1,079
Cast-iron soil pipe, Iron screwed pipe fittings	445	105	640
Welded black, galv. steel pipe	3,919	5,330	4,418
Welded black, galv. wrought pipe	366	262	427
Plain black or galv. wire	978	1,241	1,681
Barbed wire, fencing	1,630	1,051	1,848
Wiven-wire screen cloth	47	49	84
Wire rope	180	74	270
Other wire	340	357	466
Wire nails	1,161	618	612
Tacks	81	31	43
Other nails	275	183	452
Bolts, nuts, rivets	284	261	693
Iron castings	239	323	589
Steel castings	64	55	314
Car wheels, axles	583	220	1,227
Forgings	306	641	586
Total	57,263	59,556	101,992

Industrial Men in the Day's News

Dr. E. W. Rice Jr., 1931 Edison Medalist, American Institute of Electrical Engineers



HIS INTEREST in electrical manufacturing dates from the age of 18 when he was graduated from high school.

AWARD of the Edison medal was made for his development of electrical systems and encouragement of industrial scientific research.

FROM 1913 to 1923 he was president of General Electric Co., Schenectady, N. Y.

DR. EDWIN W. RICE JR., recently noted in STEEL as recipient of the 1931 Edison medal of the American Institute of Electrical Engineers for his contribution to the development of electrical systems and encouragement of industrial scientific research, began his business career at the age of 18 with the Thomson-Houston Electric Co., a predecessor of the company he was later to head, General Electric Co., Schenectady, N. Y.

Dr. Rice was born in 1862 at LaCrosse, Wis., and graduated from a Philadelphia high school in 1880. From an affection formed for one of his high school professors he joined him in the latter year to enter the then uncertain field of electrical manufacturing with the Thomson-Houston company at New Britain, Conn.

Three years later, and until 1888, he was superintendent of the company, being technical director at the time of its merging in that year with General Electric Co.

In 1895 Mr. Rice became vice president in charge of manufacturing, a post in which he ably served until 1913, when he was made president, succeeding Charles A. Coffin. It has been said that in this position he revealed most of his greatness. Great as were his engineering and inventive achievements, he demonstrated further his leadership of men.

In 1923 Dr. Rice retired from the presidency to hold the honorary chairmanship of the board of directors.

Dr. Rice was one of the first to sponsor the steam turbine and to encourage the development of the metallic filament lamp. He holds more than 100 patents in his own name, and was largely instrumental in establishing the General Electric Co.'s research laboratory.

Aside from membership in the Society of Illuminating Engineers and several English engineering societies, Dr. Rice is a member of the American Institute of Electrical Engineers, of which he was president in 1917. He holds honorary degrees from the University of Pennsylvania, Harvard university, Union college and Rensselaer Polytechnic institute. Award of the Edison medal was formally made at New York, Jan. 27.

C F. BIGGERT has been named vice president in charge of raw material purchases for the International Harvester Co., Chicago, including Wisconsin Steel Co., Chicago, a subsidiary. W. M. Reay, vice president, will have charge of purchasing.

A. E. McKinstry has been elected first vice president of the International company, a post vacant for two years. George A. Ranney, vice president and treasurer, has been made vice president in charge of sales. Sydney G. McAllister has been appointed vice president in charge of manufacturing to succeed Cyrus McCormick Jr., resigned.

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Fred M. Gillies, assistant general superintendent of Inland Steel Co., Chicago, sustained a broken vertebra in an airplane crash in Chicago on Jan. 26. He was a passenger on a plane piloted by his friend, Edward A. Stinson, noted aviator, who was killed in the crash.

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H. C. Thomas has been appointed assistant to general works manager of the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. He is being advanced from the position of director of manufacturing stocks which appointment was received in September, 1929.

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A. M. Wortley has been appointed district manager of sales in Philadelphia for American Rolling Mill Co., Middletown, O., to succeed W. S. Stephenson, recently resigned.

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Everett D. Graff, for some years a vice president of Joseph T. Ryerson & Son Inc., Chicago, was elected first vice president at the annual meeting of directors recently.

Robert C. Ross and H. B. Ressler have been elected vice presidents. Mr. Ross, who has been assistant to the president, and formerly general traffic manager, was also elected to the board of directors. Mr. Ressler was formerly general manager of sales, prior to which he was manager of the mill order department, and manager of the St. Louis plant.

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Kenneth Gillette will join the Fer-

ro Enamel Corp., Cleveland, Feb. 1. He comes from Kenyon college, where he was assistant instructor in physics.

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S. R. Willock has resigned as vice president and director of the Wellman Engineering Co., Cleveland. His plans for the future have not been announced.

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Roy E. Warner has been appointed district representative in Minneapolis for Greer Steel Co., Dover, O. The Minneapolis territory will comprise Minnesota and the northern half of Wisconsin.

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E. A. Russell, vice president of the Otis Elevator Co., New York, and E. M. Ashcraft Jr., counsel for the company, have been elected directors of Crane Co., Chicago, to fill existing vacancies. Other retiring directors and officers were re-elected.

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Henry G. Dalton, senior partner of Pickands, Mather & Co., Cleveland, has resigned as a director of Bethlehem Steel Corp., Bethlehem, Pa. His place on the board has been filled by the appointment of Paul Mackall, vice president in charge of sales, Bethlehem Steel Co.

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Frederick B. Heitkamp, formerly sales manager of the Cincinnati Milling Machine Co., Cincinnati, has been appointed general sales manager for the Cincinnati Milling Machine Co. and Cincinnati Grinders Inc., Cincinnati. Mr. Heitkamp, who is a graduate of Rutgers university, New Brunswick, N. J., has been associated with the Cincinnati Milling Machine Co. since 1921.

J. E. Caster has been appointed to manage the newly opened Pittsburgh office of Cincinnati Milling Machine Co., Cincinnati, and Cincinnati Grinders Inc., Cincinnati. He has been affiliated with the former company since 1916. In September, 1931, he was appointed manager of the Cleveland office, which position he will continue to hold in addition to his new work.

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George E. Bucher, assistant general manager of the Westinghouse Electric International Co., New York, has been named vice president and general manager. He joined the company in 1909, and in 1911 was transferred from East Pittsburgh, Pa., to New York. In 1920 he was appointed assistant to the general manager.

To Buy Boiler Tubes

New York—Panama Canal office, Washington, closes Feb. 3 under schedule 2720 on 1500 cold drawn steel seamless boiler tubes, 2-inch o. d., 12½ feet long, 0.120-inch thick.

Obituaries

MORRIS W. BUSH, 52, president, Alabama By-Products Co., Birmingham, Ala., and president, former Shelby Iron Co., Shelby, Ala., died Jan. 24. Born at Mobile, Ala., he had long been identified with coal, coke and iron concerns in the Birmingham, Ala., district. At one time he was affiliated with the Woodward Iron Co., Birmingham, and at the time of his death was a member of the board of the First National bank, Birmingham.

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Benjamin A. Riesner Sr., 76, president of B. A. Riesner & Son., Houston, Tex., structural steel fabricator, died Jan. 8.

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Thomas B. Margetts, 72, metallurgist for the General Engineering Co., Salt Lake City, Utah, died recently at his home in that city.

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James E. Adams, 45, general manager of M. W. Kellogg Co., Jersey City, N. J., structural steel interest, died at Newark, N. J., Jan. 22.

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Harry F. Krick, for the past 20 years a structural engineer with International Harvester Co., Chicago, died Jan. 10 at Chicago.

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William White Kingston, 66, southern sales agent for Lorain Steel Co., Johnstown, Pa., subsidiary of United States Steel Corp., New York, died at Atlanta, Ga., Jan. 26.

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David Kennedy, 56, travelling auditor for Pickands, Mather & Co., Cleveland, and office manager of the Toledo, O., furnaces of Interlake Iron Corp., Cleveland, died recently.

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James L. Roney, 69, retired traffic manager of the American Rolling Mill Co., Middletown, O., died at Middletown, Jan. 28. He was born in 1863 and until his retirement had been with the company since 1910.

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William Wrigley Jr., 70, who among many other activities, was at one time president of the Bon Air Coal & Iron Corp., Nashville, Tenn., and now known as the Tennessee Products Corp., died at Phoenix, Ariz., Jan. 26.

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Louis Hoffmann, 74, founder of the Louis Hoffmann Co., Milwaukee, sheet metal contracting firm, died Jan. 25. He was born in Milwaukee, entered the sheet metal business in 1878 and built up one of the largest concerns of its kind in the northwest.

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Lewis Cass Ledyard, 80, attorney, who in 1907 served the United States Steel Corp. as counsel, died Jan. 27 at New York. He was a friend and associate of the older J. P. Morgan, Payne Whitney, George F. Baker and many other financial leaders.

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Samuel S. Eveland, 63, engineer and inventor, died at Overbrook, Pa., Jan. 22. Among over 100 patented inventions he held were self starters for automobiles, an electrical riveter and many electric-light devices. He was founder and first president of the Standard Roller Bearing Co., Plainville, Conn.

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John F. Kyes, 76, founder of the Reed Foundry, Worcester, Mass., died Jan. 25. He organized the foundry in 1901 and was treasurer and general manager until 1912, whe he retired. At that time the foundry was absorbed together with the machine tool business of F. E. Reed Co. into the present Reed-Prentice Corp., Worcester.

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Emerson K. Lewis, 57, formerly vice president of the Lewis Foundry & Machine Co., Groveton, Pa., founded by his father, the late John L. Lewis, died at Coraopolis, Pa., Jan. 25. For the past ten years he had been associated with the Duquesne Steel Foundry Co., Pittsburgh, in its roll sales department. He was regarded as an authority on chilled-iron rolls, to which he had devoted long study. He was born and spent his entire life in Pittsburgh.

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James D. Sutherland, assistant to the president of Wyman-Gordon Co., Worcester, Mass., died at New Haven, Conn., Jan. 26. He entered the employ of the Washburn & Moen Mfg. Co., Worcester, Mass., in 1892, and for 21 years served in its sales department and that of its successor, American Steel & Wire Co., subsidiary of United States Steel Corp. He resigned in 1913 to become general sales manager of the Wyman-Gordon Co. at Worcester, Mass., and Harvey, Ill., which office he held until a few months ago.

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J. Elias Fries, 55, for the past 15 years chief electrical engineer of the Tennessee Coal, Iron & Railroad Co., Birmingham, Ala., died at Birmingham Jan. 23 after a lengthy illness. Born in Frinnayd, Sweden, and educated in that country at the University of Stockholm, he came to this country in 1913 and was first identified with Westinghouse-Church-Kerr & Co., New York, engineering contractors. Before joining the Tennessee company in 1917 he was also identified with Allis-Chalmers Co., Milwaukee, and Crocker Wheeler Co., Ampere, N. J.

MIRRORS of MOTORDOM

DETROIT

FOR the automobile industry to try to capitalize the public interest displayed at the shows and put real vigor into production programs without knowing the Ford competition is like trying to drive a car with the emergency brake on.

Taking the shows as a whole, attendance has been the best in several years; at New York it was the highest since 1927. Retail buying has been fair, that of Hudson-Essex, Graham, Buick and Chevrolet being notably good.

But the low-price class—$1000 and under—is nervous under the shadow Ford is casting; it is uncertain of the values he will offer and apprehensive that his prices will compel a general scaling-down.

Excepting the sharp reductions by Willys-Overland in its smallest line, automobile manufacturers have been holding prices. The reductions in costs they have attempted to pass along in the way of more car and accessories.

The shadow Ford is casting may lift soon. While there is some opinion that Ford is awaiting a more auspicious retail market, it is more generally believed that after learning what other low-price makers were offering for 1932 Ford ordered a further revision. Waiting is too expensive a luxury even for Ford, considering the extent of his payrolls and overhead and the anxiety of his dealers.

Ford Has Last Word

The status at Fordson, as of the end of last week, was that a small number of engines, both fours and eights, had been made, but nothing approaching quantity production has been attempted. With some exceptions, the manufacturing departments only need word from Ford to go.

On parts on which a final decision appears to have been reached—bearings, electrical equipment, rubber engine mountings and axles, to cite four —some releases have been issued, but how unbalanced those banks of parts are is indicated by the fact they range from units for 15,000 to 50,000 cars.

Ford orders for steel the past week have been pickup material, a substantial part of it being for body manufacturers. The purchasing department has prices; it needs only a signal from Ford to buy. At present, four Ford open hearths are on and the rolling mills are operating three days a week.

Lower Prices Are Probable

It is generally assumed at Detroit, which has not been such a whispering gallery on Ford plans since Model T was abandoned in 1927, that early in February quantity production will be under way, and that by the end of the month dealers will have sufficient cars to warrant a public announcement and showing. Presumably, the new four will be shown before the eight.

Scarcely secondary to design, in interest, is price. When Willys-Overland marked its base price down to $415 it set a mark for Ford to shoot at. Detroit expects the new Ford four to be priced at $390, perhaps as low as $360, and the eight to be quoted about $700.

Once more rumors are current that Ford prices will be based at the various assembly plants and that with the closer affiliation of the Ford family with one of the larger banking groups at Detroit a helping financial hand will be extended to dealers.

One report is that the extremely low price on the new four will be predicated upon a policy of no trade-ins except at the junking price; that Ford will take such trade-ins off dealers' hands promptly and the small dealer profit will not be vitiated by used car losses.

January production of passenger cars and trucks in the United States, at about 125,000 units, did not realize the expectation, but represented a fair improvement over the estimated 110,000 units for December and the actual 68,867 for November.

February normally is a month of expansion; in 1931 the increase from January to February was from 171,848 units to 219,940. January output was almost entirely without Ford support, while February almost surely will have this prop, and even if retail sales are no more than fair, a gain for February seems assured.

This hope is substantiated by the movement of steel into the Detroit area. For some producers, January practically equaled last January. The distribution of Ford tonnage would supply a decided spurt, and this seems probable. Much of the feeling of strain has lifted, in the steel trade as well as among automobile manufacturers. The movement of pig iron is not a reliable barometer at this time, inasmuch as some melters anticipated in December the increased freight rates now in effect.

At the moment, Buick, Chevrolet, Hudson, Graham and Pontiac are the strong spots in production. Buick sales have held up well, considering that it stocked its dealers earlier than other makers, and it is going into February with its January schedule of about 10,000 unchanged.

Graham Going Strong

Graham, which has been assembling about 675 units a week, indicates it will increase to about 750, which is a substantial program for its size. Chevrolet in February will probably hold close to its January rate, which was between 55,000 and 60,000 units.

Hudson-Essex is more likely to increase than decrease its current rate of about 1500 units weekly, its new models meeting with wide favor. Among body makers, Briggs is going

strongest, although Murray has resumed on Ford frames. Briggs' offering of scrap for February shipment is based upon a more ambitious program.

On the basis of scrap offered for shipment into early March, Chrysler does not plan a marked increase. Its schedule for all plants during this period totals 59 cars, compared with an average of 70 cars in each of the past three months. Plymouth, which is reported slated for a body change, is offering only one car of scrap in the coming month. By comparison, Chevrolet in January offered 130 cars; its February list has not yet been issued.

Like Plymouth, model changes are in prospect for Reo, Nash and Cord. If the radical design of Hupp's larger models goes over—and it is in the forefront of the trend—it is possible that the conservative lines of the smaller models will be revised.

In general, the weekly schedules of manufacturers not before mentioned are unchanged at: Auburn 750, Chrysler 500, DeSoto 1600, Dodge 1100, Plymouth 875, Hupp 350, Lincoln 175, Olds 1200, Packard 200, Pontiac 1900, Reo 400, Studebaker 1500, Rockne 1000, Willys-Overland 2100.

Here and There in Industry

INDUSTRIAL BROWNHOIST CORP., Cleveland, has moved its general offices to Bay City, Mich., continuing its district sales office at 4403 St. Clair avenue, Cleveland. Executive offices, sales, engineering and purchasing departments now are consolidated at the principal manufacturing plant, giving increased efficiency and convenience.

□ □ □

Barber-Colman Co., Rockford, Ill., has moved its sales and service branch at Milwaukee to larger quarters at 914 North Broadway.

□ □ □

Saw & Knife Specialty Co. Inc., 1375 East Thirty-third street, Cleveland, has been appointed exclusive sales representative in Cleveland territory for the hacksaw blades of the L. S. Starret Co., Athol, Mass.

□ □ □

Jessop Steel Co., Washington, Pa., has appointed the Moise Steel Co., 4027 West Scott street, Milwaukee, its distributor in Wisconsin. It will handle the full line of bars and sheets in corrosion resistant steel.

□ □ □

American Concrete & Steel Pipe Co., Los Angeles, William A. Johnson president, has completed a department for the manufacture of welded steel pipe for water lines, concrete lined and coated.

□ □ □

Domhoff & Joyce Co., 407 Schmidt building, Cincinnati, has added a steel and iron scrap department in charge of C. F. and R. W. Kolkmeyer, who have been active in the scrap market at Cincinnati for many years.

□ □ □

Allis-Chalmers Mfg. Co., Milwaukee, has bought the Birdsell Mfg. Co., South Bend, Ind., manufacturer of farm wagons, clover and alfalfa hullers. The plant may be merged with the Advance-Rumely division at La Porte, Ind.

□ □ □

Inland Steel Co., Chicago, has bid in at bankruptcy sale the plant and equipment of the Mount-Cooper Boiler & Iron Works, Tulsa, Okla., for about $110,000, the total of its mortgage. No announcement has been made of the disposition to be made of the property.

□ □ □

Globe American Corp., Macomb, Ill., is transferring its foundry to Kokomo, Ind. The Macomb plant will not be closed but foundry work will be concentrated at Kokomo. The company manufactures stoves, ranges, brooders and other types of heaters. W. Dow Harvey, Kokomo, is president.

□ □ □

Harnischfeger Corp., Milwaukee, has bought the arc welder and electric motor lines of the Northwestern Mfg. Co., Milwaukee, and will manufacture these devices at the Harnischfeger plant. K. L. Hansen, inventor of the welding unit, will be associated with the Harnischfeger company in a consulting capacity.

□ □ □

Reliance Electric & Engineering Co., Cleveland, manufacturer of electric motors, has moved its office at Cincinnati to 2905 Carew Tower, with J. L. Van Nort in charge; H. A. Holmes has been placed in charge of sales at the Toledo office, and L. M. Dunning has been transferred to the Cleveland district office.

□ □ □

Continental Can Co., New York, has plans for doubling the capacity of its plant at New Orleans, by a three-story addition, 120 x 160 feet. New high-speed machinery for the manufacture of open-top cans will be installed. James M. Porter has succeeded John F. Fenn as manager of the southern district with headquarters at New Orleans.

□ □ □

Williams, White & Co., Moline, Ill., manufacturer of machinery, castings and forgings, has bought the assets and goodwill of the Rock River Engineering Works, Janesville, Wis., manufacturer of bending rolls, hydraulic straightening presses and hydraulic molding presses. G. H. Case, former owner and manager, will be associated with the purchasing company.

□ □ □

Clark Controller Co., Cleveland, manufacturer of electrical and mechanical equipment, has assumed entire management of the business of Una Welding Inc., Cleveland, formerly Una Welding & Bonding Co., manufacturer of electric arc welding equipment. E. A. Hurme, formerly Pittsburgh district manager for the Clark company, has been made assistant sales manager in charge of Una sales.

□ □ □

Doehler Die Casting Co., 386 Fourth avenue, New York, has bought from the National Lead Co. the equipment, inventories and goodwill of the Newton Die Casting Corp., New Haven, Conn. Most of the equipment will be removed to the Doehler plant at Pottstown, Pa. By this deal the National Lead Co. becomes a substantial Doehler stockholder and will be represented on the board of directors.

□ □ □

Carlem Engineering Co., Pittsburgh, fabricator and distributor of reinforcing bars, no longer is operating. L. J. Lind, recently president of the company, has formed the Lind Co., and W. N. Dambach and M. A. Benz, formerly vice president and secretary-treasurer, respectively, of the Carlem company, have organized W. N. Dambach Inc., Pittsburgh. Both companies will engage in the reinforcing bar business.

□ □ □

Studebaker Chemical Co., Elyria, O., E. M. Williams president, has sold to the Medusa Portland Cement Co., Cleveland, its entire output of rustproof coatings and kindred protective coatings, for national distribution through the latter's sales organization. To meet enlarged demand from this increased sales effort the plant at Elyria will be tripled. The Studebaker company also has received from the Medusa company a contract for the manufacture of the vehicle portion of its cement floor coating.

EDITORIAL

Emphasis Is Shifting from Saving To Selling

A TIMELY admonition which applies to many who will read this is contained in the article on page 34 of this issue. It reads, "We realize now that we cannot work out of loss by saving alone. We must *save* ourselves out as much as we can—but we must also *sell* ourselves out, or else get out."

Informed observers will agree that to date the executives of the majority of industrial concerns have exercised far more acumen in staving off loss through reduction of outgo than by increasing income. It was only natural that management, once it was convinced that prosperity was not "just around the corner," should resort to the easiest and quickest method of keeping out of red ink. One by one, as their officers gave up hope of an early return to improved business conditions, companies indulged in an orgy of retrenchment. In some cases the cutting of expenses has not gone far enough. Many executives, impelled by a fear approaching panic, have cut unwisely. Still others, proceeding ruthlessly, have exceeded the bounds of reason and have seriously impaired the future of their companies.

But most of the concerns which have enjoyed competent management now have practically exhausted the opportunities which lie in retrenchment. Mr. Buchen is right in saying that the policy of cutting expense "has reached the point of vanishing return." The time is near at hand, if it is not already here, when the greater emphasis must be placed on increasing the income.

Possibilities in Policy of Retrenchment Now Are Almost Exhausted

This ultimatum will prove a serious challenge to presidents and sales managers in every branch of the steel industry. It means that hope for larger revenues must lie either in higher prices or an increase in the volume of sales.

The opportunities presented to the individual company to help establish prices of steel products on a higher level are limited. Each sales manager is anxious to see prices strengthen and rise, but he is equally desirous of obtaining his company's share of the available business. Even though he may be actuated by the best of intentions, his attitude under present conditions is necessarily one of compromise between an honest desire to maintain or increase prices and a dire need of a certain volume of orders. Thus he is prevented from exercising a strong influence for higher prices. Therefore the trend of prices is likely to be governed more by general conditions and by outside influences than by the independent action of individual companies.

Superficially the prospect of increasing sales in the face of existing dull demand is not encouraging. But here the individual company has far greater latitude than in the matter of prices. During periods of greatest stress there always are a few concerns which by virtue of superior methods are able to sell more goods proportionately—and without undue price concessions—than their competitors. For this reason it behooves every producer of steel products to make certain now that his sales organization is functioning efficiently.

Intensive Application To Selling May Prove "Impossible" Can Be Done

Many who have been directing sales under the discouraging conditions of the past year will declare emphatically that it is practically impossible to increase income by more intensive selling or by any conceivable change in selling methods. They base this statement on the assumption that under present conditions the market cannot be "forced."

This is partly true in the case of certain products, especially those in which service is a minor factor and those where use is restricted to a definite, fully known and highly developed market. But in the case of many grades of finished rolled steel, and of steel stampings, steel castings, welded steel products, etc., the possibilities of even the present depressed market are far from being exhausted. It is doubtful whether ingenuity in the merchandising of steel and steel products has been advanced as far as ingenuity in the metallurgy, production and treatment of steel. Numerous devices for broadening sales that have proved successful in other industries have not been given a fair trial by sellers of steel. The possibilities of the plan of integrated selling advocated by Mr. Buchen for the steel castings industry is one of several ideas which merit the attention of steel interests.

If the steel industry will examine the opportunities in merchandising as energetically as it attacked the problem of cutting expenses, it will find—as it did in retrenchment—that many things believed to be impossible can be done with relative ease, once the will to do has been aroused.

THE BUSINESS TREND

Business Is Developing Better Poise

WHEN the statistical returns for January appear, it will be found that the first month of the new year exhibited little to distinguish it from those of the last half of 1931. In the main, prices slipped gently to slightly lower levels. Industrial activity did not change appreciably, although a few important industries showed some improvement. The financial tension, although relieved somewhat, still was a major factor in prolonging the feeling of uncertainty which characterized the closing weeks of the old year.

One of the most favorable developments in January was the moderate pickup in automobile production. Output in the United States and Canada for the first month will be in the neighborhood of 130,000 units, representing a 6 to 8 per cent gain over the total for December.

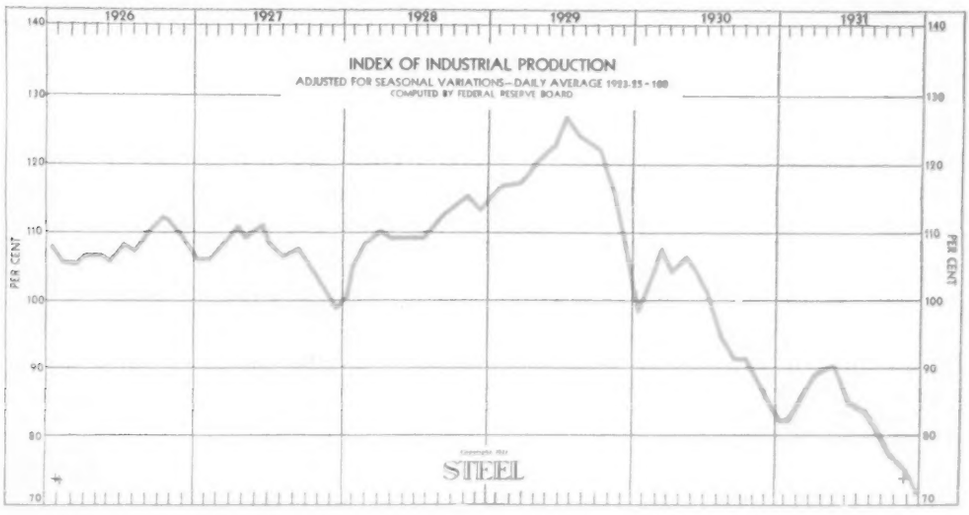
Railroad buying still is at low ebb. It is believed that the roads will enlarge their purchases just as soon as the settlement of the wage problem enables them to adjust their budgets, inasmuch as badly needed repairs have been neglected. Car loadings are recovering from the year-end low volume, but at a painfully slow rate.

The steel industry manages to hold its slight week-to-week gains in steelworks operations. The apparent steadiness is more impressive than the amount of gain. The price situation likewise seems to have improved slightly.

Reaction Is Less Demonstrative, Indicating Nerves of Business Are Steadier

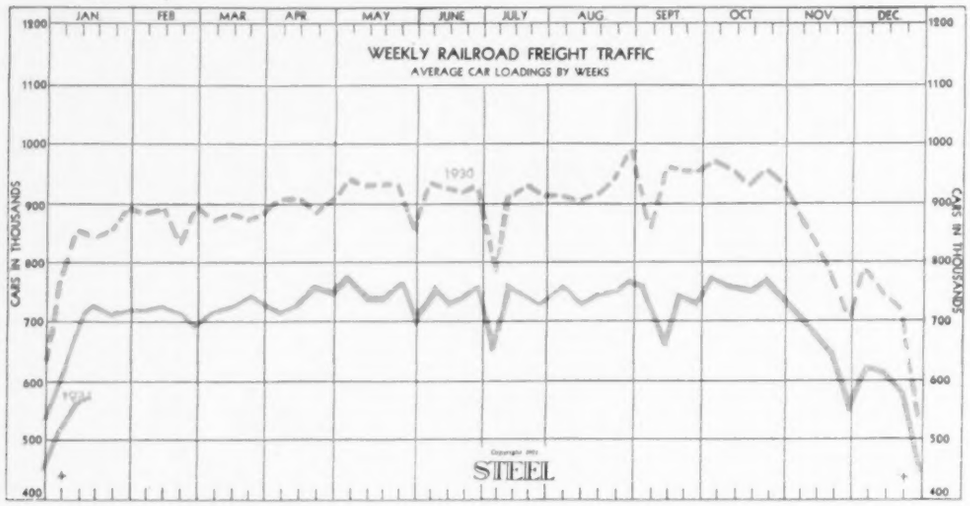
Another encouraging factor is the present attitude of the business world toward events of unusual importance. Sentiment to the Reconstruction Finance Corp. is favorable, but it is not wildly demonstrative as was the case when the National Credit Corp. was formed. The dividend action of the United States Steel Corp. announced last Tuesday was greeted calmly—in sharp contrast with the nervous reaction to unfavorable statements six months ago. The nerves of business seem to have calmed down considerably during the past half year.

In view of this better poise of business sentiment, we may expect little if any harmful result from the publication of last-quarter earnings statements. The fact is that the low profits or deficits already have been discounted. Today the railroad wage question and the functioning of the government credit bank are the most promising features of the business outlook.



1930	
Dec.	82
Nov.	84
Oct.	87
Sept.	91
Aug.	91

1931	
Dec.	71
Nov.	72
Oct.	74
Sept.	76
Aug.	80



	1932	1931
Jan. 16	573,276	691,753
Jan. 9	572,504	712,128
Jan. 2	503,325	614,860
	1931	**1930**
Dec. 26	441,589	536,292
Dec. 19	581,733	713,865
Dec. 12	613,534	744,353
Dec. 5	636,366	787,072

Freight Car Loadings Recover Slowly from Year-End Slump

Freight car loadings continued to recover some of the loss made during the year-end holiday season, as loadings of revenue freight for the week ending Jan. 16 totaled 573,276 cars, a gain of 772 cars over the preceding week, but a loss of over 118,000 cars below the corresponding week last year. Ore loading accounted for 2317 cars while coal loading amounted to 119,121 cars, a drop of over 6,000 cars below the previous week, and 71,761 cars under the same period in 1930. Coke accounted for 5962 cars only 43 below last week. All districts reported reductions in the total loading of all commodities compared with the same week in 1931. Total loadings for 1931 aggregated 37,212,331 cars, compared to 45,872,769 cars in 1930.

Automobile Output Up in December; Annual Total Is Down Sharply

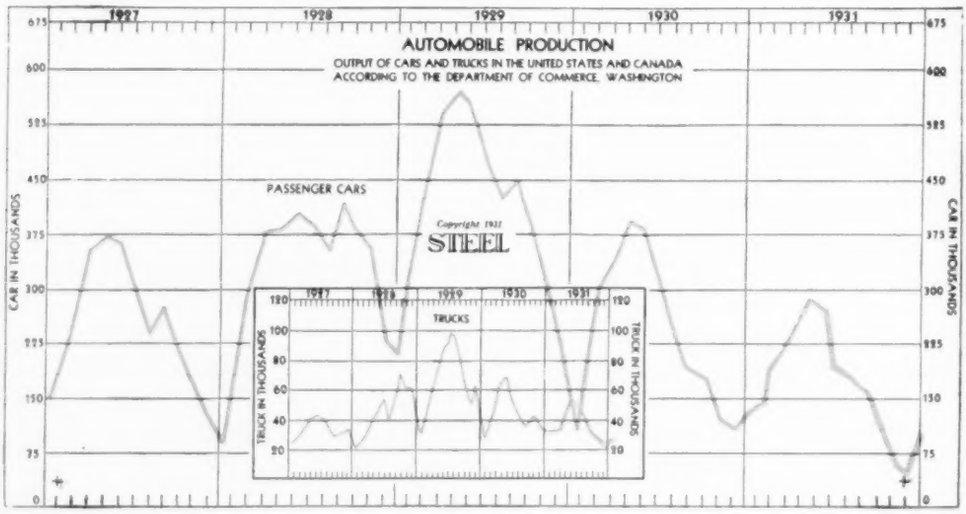
Production of passenger and commercial motor vehicles in the United States and Canada in December totaled 123,965 units, a sharp gain from the low level of 70,114 established in November. The December output embraced 98,305 passenger automobiles, as against 49,996 in November, and 25,660 trucks, compared with 20,118 in the preceding month. With December figures available, the grand total for 1931 becomes 2,472,351 units, including 2,036,567 passenger cars and 435,784 trucks. The comparative figures for 1930 are 3,510,178 total units of which 2,910,187 were passenger cars and 599,991 trucks. Attendance at the January shows has been encouraging, but it still is early to predict the probable spring demand.

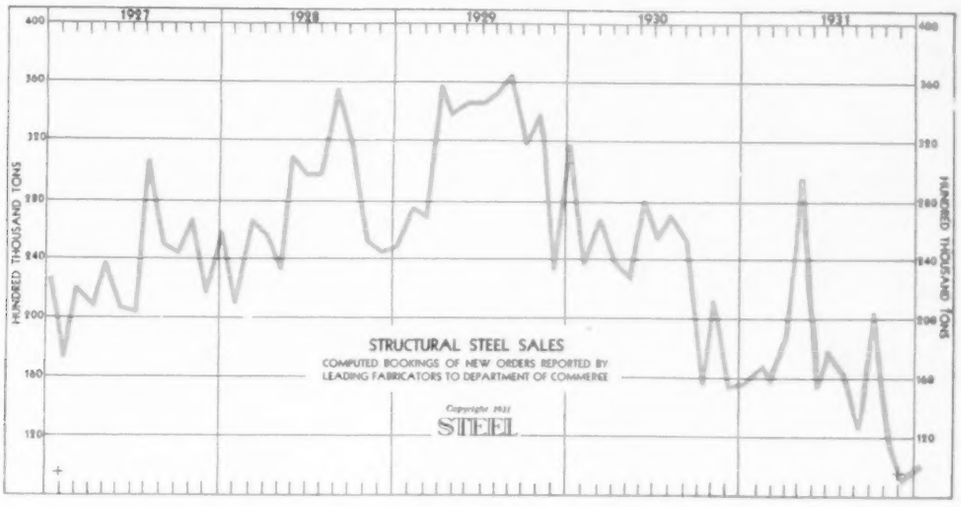
Passenger Cars

	1931	1930
Dec	98,305	126,483
Nov.	49,996	104,668
Oct.	59,176	117,014
Sept.	111,336	182,049

Trucks

	1931	1930
Dec.	25,660	34,840
Nov.	20,118	39,140
Oct.	22,406	41,928
Sept.	31,876	46,557





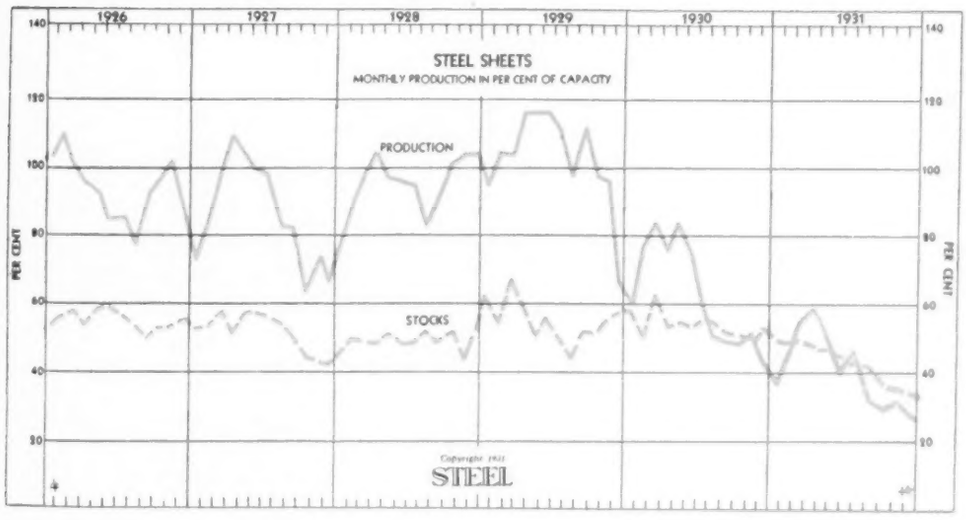
	Tons	
	1931	1930
Dec.	98,800	152,800
Nov.	87,200	151,200
Oct.	110,000	215,600
Sept.	196,800	155,600
Aug.	124,400	252,000

Structural Orders Gain Slightly After Record Low in November

December bookings of fabricated structural steel recovered slightly from the low volume of the previous two months. A decline in October, was followed in November by a drop to the lowest level in recent years of 87,200 tons or 21.8 per cent of capacity. December sales amounted to 98,800 tons or 24.7 per cent. In the same period last year bookings dropped from 52.3 per cent in October to 37.8 per cent in November with a recovery in the final month of less than 1 per cent. Total bookings for 1931 aggregate 1,904,400 tons compared to 2,689,600 tons for 1930. Shipments for 1931 totaled 1,837,200 tons compared to 2,987,200 tons for the previous year.

Production and Stocks of Sheets Change Slightly in Final Month

Activity of independent producers of steel sheets in December held practically to the low levels established in November. According to the report of the National Association of Flat Rolled Steel Manufacturers, production in December amounted to 101,570 tons or 26.3 per cent of capacity as compared with 26.7 and 33.1 per cent, in November and October, respectively. Stocks also showed little change. In December they represented 32.8 per cent of capacity, as against 34.6 in November and 37.0 in October. Stocks now have declined for an unbroken period of 10 months. Unfilled tonnage as of Jan. 1 was equivalent to 31 per cent of capacity.



Production

Per cent of capacity

	1931	1930
Dec.	26.3	39.8
Nov.	26.7	43.6
Oct.	33.1	50.6
Sept.	32.0	48.8

Stocks

Per cent of capacity

	1931	1930
Dec.	32.8	50.6
Nov.	34.6	54.1
Oct.	37.0	49.4
Sept.	39.2	50.4

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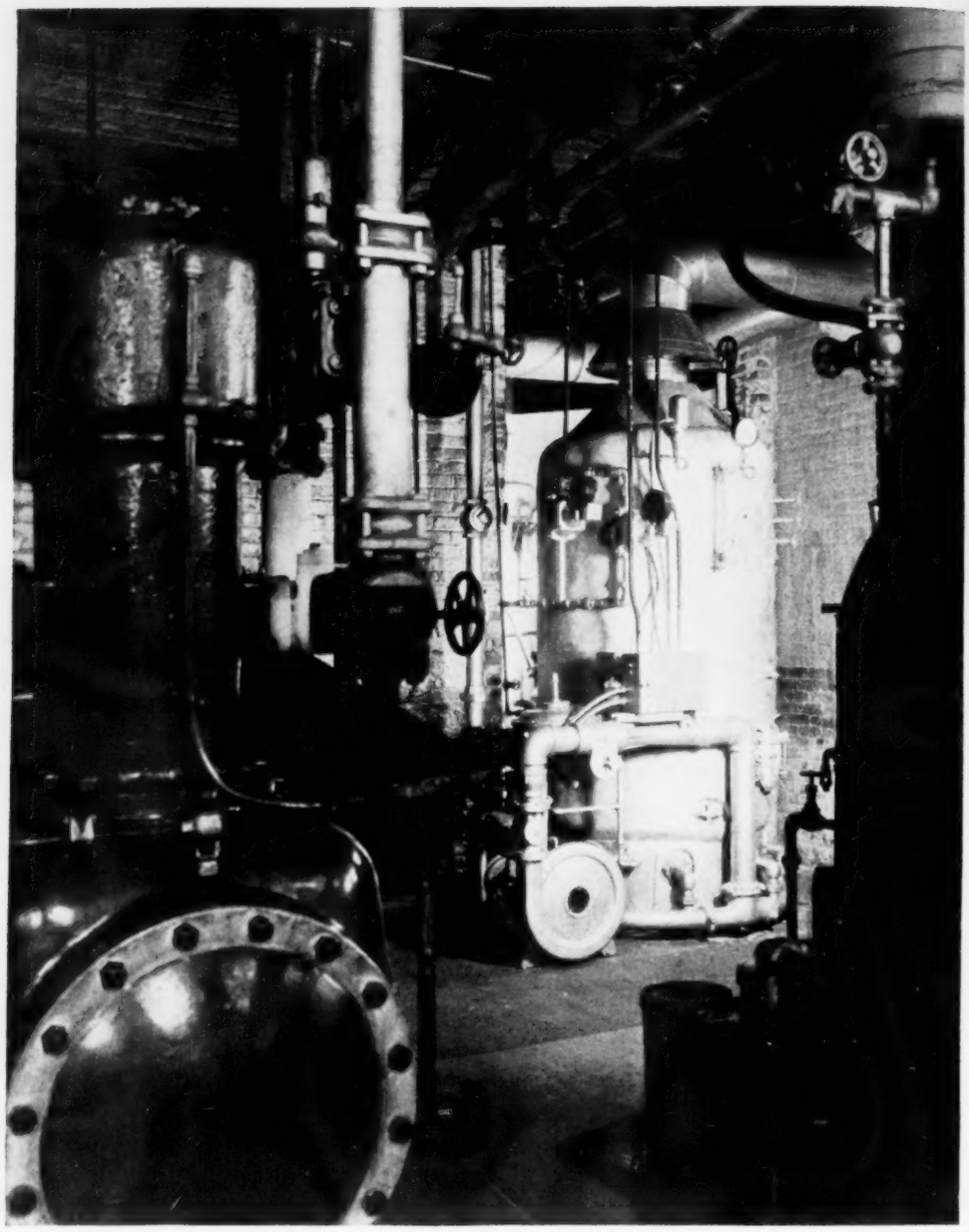

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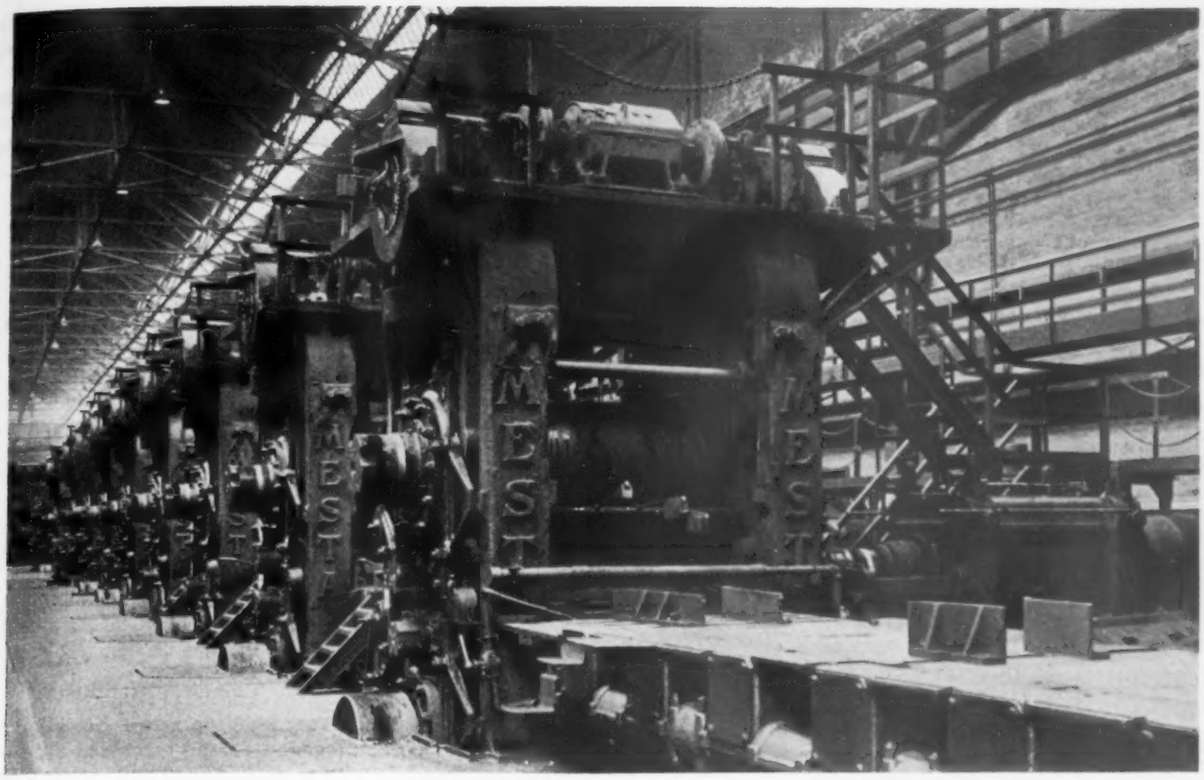


Courtesy, Wheeling Steel Corp.

Typical four-high continuous hot strip mill equipped with roller bearings on both working and backing-up rolls

Lubrication of Roll Neck Bearings Requires Special Attention

BY RALPH C. WALTER
Pennsylvania Lubricating Co.

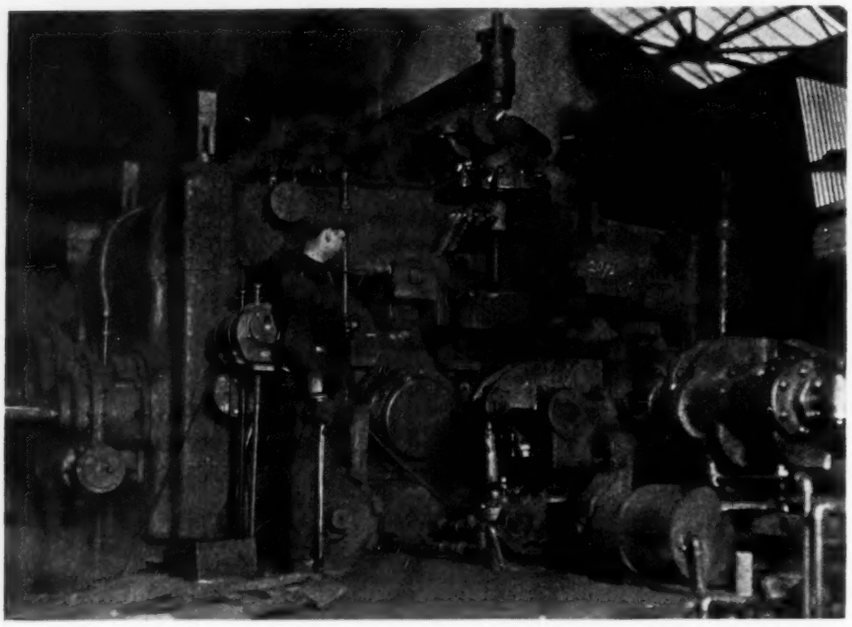
ONE of the recent outstanding developments in the steel industry is the four-high continuous hot strip mill which has enabled the steel manufacturer to meet heavy production demands for hot-rolled strip as well as the exacting specifications of gage and finish required for this material. The development and manufacture of antifriction bearings of almost unlimited size and capacity has made possible the more recent application of this type mill to the rolling of steel plate, and has resulted in the building of mills of enormous size and capacity.

Rolling mill engineers, who have been slow to accept the antifriction bearing for roll neck application, generally concede its practicability and appreciate the greater possibilities of mill design offered by its use. With accurate data now available on loads, the development of mountings and adjustments, the only remaining problem is lubrication. Lubrication of the ordinary small size industrial type antifriction bearing does not present any particularly difficult problem and can be handled by a rather wide range of standard lubricants, but the large size and capacity bearings for roll

WITH the development of antifriction roll neck bearings for steel mill use, their lubrication became an important problem. The various phases of this lubrication question are discussed in the accompanying article by Ralph C. Walter, Chicago district manager, Pennsylvania Lubricating Co., Pittsburgh

neck applications require special treatment and it is necessary to consider the details of operating conditions in order to realize the exacting demands made upon lubrication facilities.

The bearing manufacturer sets up a general lubrication specification to cover ordinary installations but for large installations involving special load and speed conditions the bearing manufacturer prefers to make a definite lubrication recommendation to suit the individual application.



Courtesy, Timken Roller Bearing Co.

Modern piercing mill equipped with antifriction-type bearings

The three principal conditions which a lubricant must meet will be considered in the order of their importance:

1. *The formation of a seal to prevent the entrance of foreign matter into the bearing.*

Mill bearings operate in a continual flood of water which carries with it the scale, resulting from the rolling operation, and other foreign matter which must be kept from entering the bearing. The bearings, of course, are provided with a mechanical seal generally in the form of a packing or a piston ring, and while these seals have been and still are being improved by the bearing manufacturer, it is necessary to keep an excess of lubricant continually supplied to the bearing and forced out between the seal and the bearing proper to prevent as far as possible any foreign matter from entering. This condition definitely requires the use of a grease instead of an oil for lubrication.

The consistency of the grease must be sufficiently soft to circulate thoroughly through all parts of the bearing, the size, speed and design of the bearing being the determining factors of this consistency. The grease should be of the maximum consistency to meet this requirement as the harder grease forms the more effective seal and reduces leakage to a minimum.

The effectiveness of the mechanical seal is a gage of the grease consumption. An extreme case has been noted where a 12½-inch I. D. bearing required approximately 2 pounds of grease per hour. For bearings of 12-inch I. D. and up a grease consumption of 0.15 to 0.20 pounds per bearing per hour is average practice.

2. *The formation of a protective coating on the rollers and races.*

It is practically impossible to prevent the mill water from entering these bearings, no matter how effective the mechanical and grease seal. Therefore, the lubricant must form a protective coating on the rollers and races to keep them from contact with water. One of the principal sources of trouble in mill bearing operation is "water etching," or rusting as it is commonly called. Rollers and races are hardened and polished to a high degree and the effect of water etching on these hardened and polished surfaces can be compared to the effect of a scratch on a sheet of plate glass. Plate glass will stand a great amount of abuse as long as the surface is perfectly clear but if the surface is scratched even slightly a light blow may break the glass. So, with bearings, the etching on the surface is liable to cause the bearing to chip or flake. For this reason the lubricant must be absolutely water-resisting and waterproof, and show no emulsification. The lubricant itself, which forms the protective coating, must be noncorrosive, both alone and in water.

3. *Lubrication to prevent running friction.*

The theoretical ideal of pure rolling action in antifriction bearings cannot be attained in practice and a lubricant must be provided to reduce running friction and wear to a minimum. Before the application of roller bearings to roll necks a good lubricant which would have a load-carrying capacity of 8000 pounds per square inch was suitable for all ordinary applications. Experience has shown that such a load-carrying capacity is insufficient to provide proper lubrication for roll neck applications and a lubricant must be provided with a much greater load carrying capacity.

Cannot Use Filler

The load carrying capacity of a lubricant can be increased by the addition or incorporation of certain ingredients. It has been found, however, that any ingredient or filler such as talc, fullers earth, mica, asbestos, etc., no matter how soft, causes a definite lapping action and consequent wear. All antifriction bearing manufacturers in their lubrication specifications have prohibited the use of filler material of any description.

Exhaustive laboratory and operating tests, however, have shown that lead oleate, when properly incorporated in intimate combination with the grease, furnishes the necessary increased load carrying capacity without any appreciable lapping action. A grease containing this material is now available for heavy-duty roller bearing lubrication, providing a load carrying capacity of 25,000 pounds per square inch.

This product, now in almost universal use on roll neck bearing applications, is available in a range of densities from 250 to 350 tenths of a millimeter Penetrometer test, to meet the size, speed and design requirements and still give the maximum sealing qualities to prevent the entrance of water and foreign matter. In addition to being waterproof, and water-resisting it is noncorrosive either alone or in the presence of water. Its stability is assured as the ingredients which furnish the increased load carrying capacity are in intimate combination and cannot be separated mechanically.

The development of this new product has made possible the successful operation of several antifriction roll neck bearing applications, operating

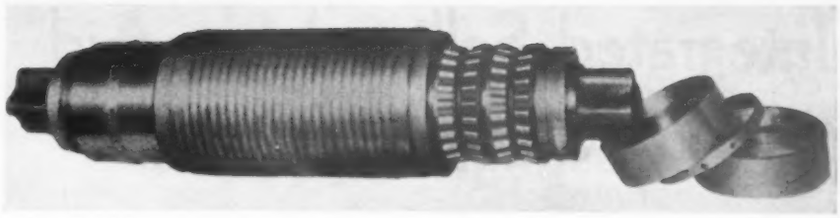
regularly under severre overload conditions.

Although the lubricant is manufactured to meet the above exacting specifications, it is not merely sufficient to apply the grease to the bearing and expect perfect operation. Unless precautions are taken in the handling of the lubricant and bearings and in the mill operations, bearing failures are certain to occur with a resulting delay in mill operation and excessive maintenance costs. From experience in the lubrication of practically all of the four-high continuous mills now in operation a few suggestions may be offered for the practical handling of lubrication of antifriction bearings.

Cleanliness Essential

The lubricant as manufactured is absolutely clean and free from all foreign matter and the same great care should be exercised in handling this grease in the mill to prevent contamination as is used in handling the bearing itself. The grease handles even in extreme cold weather with a barrel pump and should be removed from the drum in this manner, thereby avoiding opening the large cover of the drum with the consequent danger of foreign matter entering through this large opening in the drum.

The grease will operate satisfactorily over a temperature range of from 0 to 150 degrees Fahr. and never should be placed near heat radiating vessels, such as salamanders, as excessive heat will damage any lubricant of this type and cause separation. It is also suggested that an automatic centralized pressure grease system be used for applying the lubricant to the bearing. This not only will keep a constant supply of lubricant fed at regular intervals to the bearing adjusted to suit operating conditions, and assist in maintaining an effective grease seal, but also, being a closed system, will assist in keeping foreign matter out of the grease.



Courtesy, Timken Roller Bearing Co.

Experimental arrangement of roller bearings on rod mill roll neck

The water supply for an antifriction bearing mill also should be given consideration. A check on the lubricant after it has been in service usually shows the presence of sand, which has come from the mill water, particularly in the lake regions. Any quantity of sand in the bearing is detrimental to its operation and everything within reason should be done to assure a clean water supply.

When a bearing is taken down all of the old grease should be cleaned off and new grease added when the bearing is reassembled. As the lubricant is waterproof and water-resisting some difficulty may be experienced in cleaning off the grease. A hot soda ash solution is effective for this work. Any remaining grease then can be blown off with an air hose and the bearing wiped clean with rags.

Note Temperature Rise

The first indication of trouble in an antifriction bearing is denoted by a rise in temperature and on the large backing-up roll bearings the installation of a thermocouple in each bearing, connected to a recording pyrometer located in the operating pulpit, is recommended strongly. Any mechanical or lubricating trouble then will be indicated immediately and can be remedied before the bearing is damaged. In general, filling the bearing two-thirds full is approximately correct. Operating experience will permit the operator to determine, by watching the leakage past the seal, the correct amount to suit each individual installation.

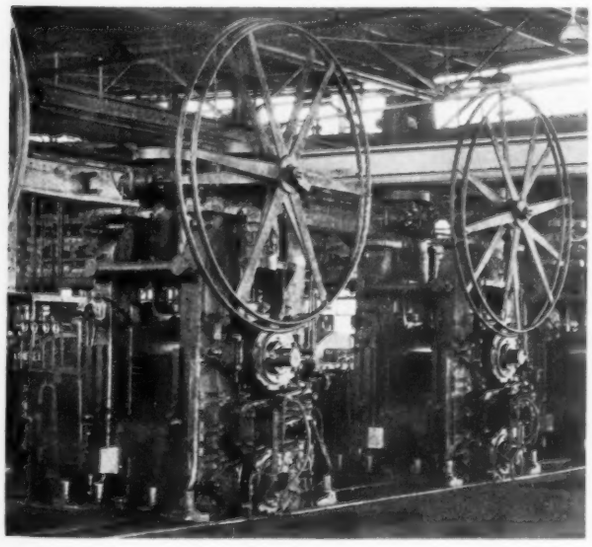
So far no effective method has been devised to check the amount of grease in a bearing during operation. In an installation involving a number of bearings, variations in the tightness of the mechanical seals will cause greater or less leakage of grease from the various bearings and it is essential that some method of checking be available. Until some other method of checking the quantity of lubricant is devised, the recording pyrometer provides a reasonable check. If too much grease is originally loaded into the bearing, causing heating in the higher speed bearings, an immediate rise in temperature will be noted as soon as the bearing is started in service.

The ordinary operating temperature varies, generally, between 90 and 110 degrees Fahr. and an insufficiency of grease will be indicated by a gradual rise in temperature during operation. It can be seen readily that a continuous record will give not only a check on the bearing, but also a check on the lubrication. When the operating temperature rises to 120 degrees Fahr. immediate steps should be taken to determine the cause and if the temperature continues to rise to 150 degrees the mill should be shut down until the cause of the heating is determined definitely.

Check Grease Consumption

It is desirable that a close check be made on the grease consumption of the bearings; also, on the condition and quantity of grease in the bearings when they are dismounted after a roll change, as such checks will indicate any unusual operating condition and greatly assist in the economical and efficient lubrication of the bearings.

With the present highly developed antifriction roll neck bearings and the special greases developed for their lubrication, operating and maintenance troubles will be at a minimum if operators will exercise carefully the above mentioned precautions.



COLD strip rolling mill, provided with roller bearings on roll necks

Integrated Selling May Aid Steel Castings Industry

BY WALTHER BUCHEN
President, The Buchen Co.

WITH overhead and production costs down to a near minimum, management in the steel castings industry must look to income for an improvement of its depressed state and increased income must come through merchandising. In this article, abstract of an address before the Steel Founders' Society of America in Chicago, Jan. 21, Walther Buchen, president, The Buchen Co., Chicago, analyzes the situation and makes a plea for integration of selling.

SINCE the beginning of 1930 economic thinking in the metal parts industry has dealt with the economics of loss. First attempts to deal with it consisted primarily of diminishing outgo. There was somehing approximating amazement at finding out how radically expenses could be cut. The effects of this policy of cutting expenses were so quickly apparent and were so relatively easy to effect that for a considerable period the principal energies of many companies were concerned with this phase alone.

As of January, 1932, most competently administered companies must, I believe, admit that this policy has reached the point of vanishing return. There is not much more to be gained by eliminating personnel, by reducing salaries and wages, by using still cheaper materials, or by "chasing nickels" in all miscellaneous sources of expense. These jobs have all been done and done well—in some cases perhaps too well.

Costs at Minimum

Management must concern itself primarily with income. We realize now that we cannot work out of loss by saving alone. We must save ourselves out as much as we can, but we must also sell ourselves out, or else get out.

What will this industry, and similar industries do about it?

Let us look for a few minutes at the constitution and construction of costs and prices. Costs can be grouped under seven major heads: Materials, labor, supervision, management, financial expense, fixed assets, and selling.

Material costs are lower than they have been during the days of most of the men now active in the industry. Labor costs, taking into account not only present sales, but also labor-saving devices and methods, probably are lower than they have been for 15 years. Financial costs are for some of us less than they have been. More of us are working on our own money than was the case 10 and 15 years ago, but if we are working on borrowed money the financing cost per unit produced is high. If we have been anything but extremely careful of credits, our credit losses will also have been high and may well be forbidding during the next six or eight months. In the main management costs probably are lower in bulk than for the last nine or ten years and higher per ton of product.

We come to fixed asset costs and selling costs. Depreciation and obsolescence are a part of every cost—whether or not we admit it. When we sell a ton of castings without including at least such depreciation as the government allows, we are giving as a gift with that ton of castings a part of our furnaces, machinery and plant. Obsolescence in a large measure is a function of time and not of use. All of the time, even during this depression, other ways of producing ferrous metal products are being developed and used. Welding is, of course, the most noticeable example.

As to selling costs, these also are lower today in bulk in most cases than they have been for the last five or six years. Per unit or product they are high—perhaps higher than at any other time in the last eight or nine years. Because of the competent attention that has already been paid to outgo, it is not likely that continued action along the present lines of cutting expense can lower these costs materially. In many cases they already are too low for effectiveness. By proper use of advertising and similar aids, they undoubtedly can be cut in a number of cases, especially as far as marginal customers are concerned, and in some instances in the case of primary customers.

Three Roads Out

This brief review of the present status of the factors in cost can only be discouraging. What can the steel castings industry do? There are only three general policies possible for it.

The first is to let dog eat dog, and let the devil take the hindmost—the policy that in the main is being pursued by many units in most industries.

The second is to take such ameliorating steps as are legal and suitable, and by establishing the framework of a more sensible competition to do the best that can be done in improving the product and its merchandising insofar as these will help obtain a better price against indirect competition.

The third is for steel castings plants that are in a position to do it, to integrate with other metal parts plants, especially in selling and merchandising. This tendency has been quite apparent in other industries where the volumes contracted sharply somewhat earlier than in this one. It is a common phenomenon, for instance, among building materials industries. A certain company in 1929 was selling only an insulation board. In 1931 it took on blanket insulation and filler insulation, so that its specialists, instead of selling one special kind only, were in a position to sell and merchandise all typical

insulation products to a wide variety of consumers.

It is not impossible for a steel castings foundry, a modern gray iron foundry, a forgings plant, and perhaps even a die casting plant, to have a common sales organization owned by all of them. It is true that there are at present few men who could successfully sell and merchandise all four classes of products. Because the men do not exist at present is no reason for supposing that they cannot be developed. Probably another phase of the same kind of integration would be for a steel foundry to set itself up to supply welded parts.

Already it has some equipment required for this work. Some plants have a good deal of it, even to the furnaces that will probably be found a necessity for normalizing welded parts.

Certainly the steel foundry is in a better position to develop a technique for combining castings and other forms of steel than some other industries. It has been accustomed to the specifications surrounding such parts and to their use in the buyer's plant.

Enlarge Specialization

Still more to the point is the integration of selling. It cannot be emphasized too much that the primary cost in selling is the making and maintaining of proper contacts. The creation and maintenance of these contacts can be paid for only by selling them something. The days in which the one-product specialist could sell enough of his only product to pay for the contacts are gone for the time being. The only feasible remedy is for the specialist to enlarge his specialization by selling allied products for the same assembly, to the same contacts in the same organization.

Of course there is a limit to such integration, but the limit to the present specialization has already been reached and has perhaps been passed for many months.

Any remedy that will meet the ills of this depression, which will enable an industry to break even or make a profit under present conditions, will certainly put it in a better condition to profit when there is a resumption of more normal volume in buying.

We have many signs of integrated selling, such as that which has been suggested for the various factors of the metal parts industry. One machine tool manufacturer already has ventured upon it. A number of building material companies have even made a moderate success of it. Electrical suppliers to the household are doing it. It seems to be on its way. I have the boldness to hope that this industry, which has been so courageous in the past, which still consists of so many units in which individual initiative functions strongly, will be among the first to adopt this, or some similar way out of the present deadlock between merchandising and prices.

Mining and Metallurgical Engineers Announce Program for Meeting

A SYMPOSIUM on the subject of gases in metals has been placed on the program for the 141st annual meeting of the American Institute of Mining and Metallurgical Engineers to be held in the Engineering Societies building, New York, Feb. 15-18. For this symposium, arranged jointly by the Iron and Steel and Institute of Metals divisions, eight papers have been scheduled.

An important function during the week will be the unveiling of a three-quarter length portrait of President Hoover painted especially for the four founder societies.

At the annual dinner to be held at the Commodore hotel Feb. 17, the William Lawrence Saunders gold medal will be presented to F. W. Bradley and the James Douglas medal to C. H. Mathewson.

Papers Discuss Alloys

The program of the Iron and Steel division includes a session on iron and steel alloys on Wednesday morning, a blast furnace and raw materials conference on Wednesday afternoon, a session on corrosion resistant metals Thursday morning and a general session Thursday afternoon. E. C. Bain will deliver the Howe Memorial lecture on Thursday afternoon on the subject "On the Rates of Metallurgical Reactions in Solid Steel."

Among papers listed for presentation at the various sessions are the following:

Feb. 16

Gases in Metals Symposium

"Solubility of Gases in Metals," by V. H. Gottschalk and R. S. Dean.
"Determination of Oxygen, Nitrogen and Hydrogen in Steel," by J. G. Thompson.
"Critical Studies of a Modified Ledebur Method for the Determination of Oxygen in Steel," by B. M. Larsen and T. E. Brower.
"Inclusions—Their Effect, Solubility and Control in Cast Steel," by C. E. Sims and G. A. Lillieqvist.
"The Degassing of Metals," by F. J. Norton and A. L. Marshall.
"Some Metallurgical Characteristics of Induction Furnaces as Determined by the Absorption of Oxygen by Molten Nickel," by F. R. Hensel and J. A. Scott.
"Influence of Gases on Metals and the Influence of Melting in Vacuo," by Wilhelm Rohn.

Feb. 17 and 18

Iron and Steel Division

"On the Rates of Metallurgical Reactions in Solid Steel," by E. C. Bain.
"The Equilibrium Diagram of Iron-Manganese-Carbon Alloys of Commercial Purity," by E. C. Bain, E. S. Davenport and W. S. N. Waring.
"Vanadium in High-Speed Steel," by A. B. Kinzel and C. O. Burgess.
"Iron-Aluminum Alloys. Resistance to Oxidation at High Temperatures," by N. A. Ziegler.
"Electrochemical Potentials of Nitrified Steel," by Shunichi Satoh.
"Preparation of Iron Ore Sinter," by Perry Harrison.
"Use of Sinter in the Blast Furnace," by Robert McClurkin.
"Effect of Heat Treatment on the Corrosion Resistance of Stainless Iron," by C. G. Merritt.
"Prevention of Intergranular Corrosion in Chromite Nickel Corrosion Resistant Steels," by P. Payson.
"A Quantitative Method for the Estimation of Intercrystalline Corrosion in Austenitic Stainless Steels," by J. J. B. Rutherford and Robert Aborn.
"Some Effects of Temperature and Iron Oxide in the Manufacture of Basic Open-Hearth Steel," by W. J. Reagan.
"Pressure Welding of Low-Carbon Steels with Theoretical Considerations on the Mechanism of Such Welding," by C. R. Austin and W. S. Jeffries.
"Tensile Properties of Rail Steels at Elevated Temperatures," by G. Willard Quick.
"Resistance to Impact of Rail Steels at Elevated Temperatures," by G. Willard Quick.

Feb. 17 and 18

Institute of Metals Division

"Some Aspects of Alloy Building," by Paul D. Merica.
"Effect of Temperature Upon the Charpy Impact Strength of Die Casting Steels," by B. E. Sandell.
"An X-Ray Study of the Nature of Solid Solutions," by R. T. Phelps and W. P. Davey.
"Structure of Cold-Drawn Tubing," by John T. Norton and R. E. Hiller.

Reduce Abrasive Sizes

A recently revised simplified practice recommendation on coated abrasive products is being distributed for approval. The original recommendation reduced the number of sizes and types from 8000 to 1976; the new recommendation lists only 1949.

Official Record of Iron Ore Shipments from Lake Superior District in 1930 and 1931

Mesabi Range

	1930	1931
Adams-Spruce Group	1,510,170	782,962
Agnew	113,011	62,996
Albany	235,741	202,243
Alexandria	234,788	146,622
Ann	14,179	3,872
Arcturus	446,411	310,111
Bennett	512,340	382,917
Biwabik	276,921	.....
Bruce	153,832	118,492
Burt-Pool-Day	200,667	168,799
Commodore	96,055	4,719
Corsica	181,127	.....
Danube	289,192	.....
Drew	40,438	.....
Duncan	5,073	.....
Dunwoody	698,383	198,960
Fayal	425,616	227,315
Genoa-Sparta	150,850	.....
Godfrey	547,153	447,681
Halobe	136,182	95,900
Harold	168,324	101,673
Harrison	125,252	30,218
Harrison Annex	8,695	34,373
Hartley-Burt-Palmer	1,108,751	1,312,914
Hawkins	314,874	128,461
Hill Annex	1,000,089	425,276
Hill Trumbull	402,598	202,479
Hoadley (Crosby)	120,725	90,157
Holman-Brown	553,699	239,998
Hull-Rust	2,642,694	1,144,430
Kerr (Trespass)	508	.....
Kevin	104,318	40,337
Kinney	90,079	21,289
Langdon	58,768	.....
La Rue	358,250	423,688
Leonidas	1,186,316	867,480
Lincoln	185,538	70,415
Mace No. 2	117,948	154,983
Mahoning	1,817,707	808,213
Mahoning-Rust	147,342	7,151
Malto	27,096	.....
Margaret	125,867	151,020
Mary Ellen	21,007	.....
Mesabi Chief	470,928	456,894
Midget	25,900	.....
Minnewas	1,578,519	923,642
Missabe Mt.	2,943,016	555,944
Mississippi	80,975	.....
Morris	911,204	148,491
Morrison	723,822	549,017
No. Harrison	462,910	147,668
No. Harrison Annex	2,208	25,270
North Star	119,349	56,416
Orwell	151,501	.....
Patrick	351,614	109,874
Quinn	20,424	26,056
Sargent	184,398	126,149
Scranton	465,207	243,116
Sellers	2,291,131	1,489,795
Shenango	439,459	38,033
South Agnew	275,000	149,707
St. Paul	378,585	.....
Susquehanna	403,835	345,982
Union	144,785	42,802
Uno North (G. N.)	27,644	.....
Utica	265,245	.....
Wabigon	96,557	.....
Wacotah	394,227	94,062
Wade	99,408	.....
Webb	387,014	.....
Wellington	341,879	219,120
Wheeling	.....	38,810
York	75,974	75,419
Total	31,067,292	15,270,411

Menominee Range

	1930	1931
Aragon	185,166	77,168
Balkan	41,432	9,630
Baltic	11,470	537
Bates	110,658	117,489
Bengal	41,633	.....
Berkshire	146,477	.....
Bristol-Youngstown	174,296	85,688
Buck	76,343	17,295
Caspian	148,252	33,422
Chapin	415,817	216,150
Davidson Group	176,678	82,735
Florence	62,508	7,847
Fogarty	18,986	5,538
Forbes	91,221	.....
Genesee	167,406	.....
Hiawatha	151,589	116,444
Homer	136,866	.....
James	176,847	69,953
Judson	103,725	20,707
Loretto	97,152	104,166
Monongahela	.....	18,014
Odgers	16,719	.....
Penn Mines	343,459	50,471
Riverton Group	161,076	64,568
Rogers	128,721	169,692
Sherwood	.....	1,027
Tobin	19,598	.....
Virgil	137,854	79,497
Warner	178,332	79,430
West Chapin	26,031	6,522
Zimmerman	62,740	35,300
Total	3,609,052	1,469,290

Marquette Range

	1930	1931
Archibald	245,405	41,754
Athens	345,640	167,965
Blueberry	172,552	232,970
Cambria	114,936	28,925
Cleveland-Cliffs group	275,261	112,820
Francis	92,828	9,233
Gardiner-Mackinaw	60,384	18,871
Imperial	68,976	94,437
Isabella	95,984	56,297
Lake Superior Holmes	434,857	137,279
Maas	253,852	233,367
Morris-Lloyd	299,791	172,615
Negaunee	417,376	159,449
Princeton	3,230	7,891
Richmond (new)	126,543	107,958
Stephenson	68,353	24,623
Tilden	287,044	137,010
Volunteer	270,956	65,981
Total	3,633,968	1,809,445

Gogebic Range

	1930	1931
Anvil	77,963	54,091
Cary	192,686	66,584
Davis	25,417	16,276
Eureka-Asteroid	417,682	8,174
Geneva	498	468
Ironton	281,747	338,428
Keweenaw	48,085	60,446
Montreal	893,977	555,336
Newport	474,744	263,295
Norrie Group	834,576	585,356
Palms	94,970	18,692
Plymouth	404,292	303,686
Puritan	256,795	143,696
Sunday Lake	365,651	126,389
Tilden	54,126	.....
Townsite	82,863	31,348
Wakefield	404,123	242,682
West Davis	153,436	93,335
Total	5,063,631	2,908,282

Cuyuna Range

	1930	1931
Algoma	.....	59
Alstead	.....	49,377
Armour No. 1	348,299	156,748
Armour No. 2	185,657	195,050
Croft	161,562	99,539
Evergreen	146,939	42,932
Feigh	17,722	.....
Ferro	.....	50
Gloria	.....	36
Hillcrest	153,176	2,087
Huntington	6,590	.....
Ironton	46,643	18,442
Joan No. 4	.....	676
Louise	179,181	93,171
Mahnomen	193,879	220
Maroco	101,399	.....
Martin	1,009	.....
Merritt	2,662	22,304
Merritt No. 2	.....	202
Milford	98,209	77,244
Portsmouth	66,058	43,557
Sagamore	130,172	34,375
Wearne	90,032	62,021
Total	1,929,189	898,090

Vermillion Range

	1930	1931
Chandler	75,885	.....
Pioneer	1,006,204	579,730
Sibley	384,547	219,689
Soudan	140,474	110,125
Zenith	277,419	231,166
Total	1,884,529	1,140,719

	1930	1931
GRAND TOTAL	47,187,661	23,496,228

Year's Iron Ore Shipments Third of 1929 Tonnage

(*Concluded from Page 19*)

range, with 59,377 tons; and Sherwood, Republic Steel Co., Menominee range with 1027 tons. The Sherwood, still in development, does not have a shaft, the ore being removed through an adjoining underground mine operated by another interest.

Canadian iron ore mines remained idle in 1931. A shipment of 1000 pounds of concentrates from the Moose Mountain was reported by Moose Mountain Ltd. Its last previous shipment was 43 tons in 1924, though in 1923 it moved 27,000 tons. Canadian steel companies receive their ore from American mines, the Algoma Steel Corp., Sault Ste Marie, Ont., taking 187,000 tons in 1931, and the Steel Co. of Canada, Hamilton, Ont., 255,814 tons.

Formerly all the ore forwarded to Hamilton was transferred from vessels at Point Edward, Ont., opposite Port Huron, Mich., in the St. Clair river, completing the remainder of its journey in freight cars. In 1931 the ore was carried in lake freighters through the new Welland canal, connecting Lake Erie with Lake Ontario, directly to the company's docks.

Foreign iron ore, mainly from Algeria, began moving into Lake Erie, 39,778 tons coming in through the canal. Most of this ore was delivered to the Canadian Furnace Co. at Port Colborne, Ont., 20 miles west of Buffalo, at the southerly approach to the canal. This ore had to be transferred from ocean vessels at Montreal to smaller boats which could pass through the Lachine rapids in the St. Lawrence river. Until the St. Lawrence is made navigable to the larger ships it does not seem probable that foreign ore will be much of a factor on the Great Lakes.

Lake Superior Iron Ore Shipments by Ranges

Ranges	1926	1927	1928	1929	1930	1931
Marquette	4,442,765	4,151,868	4,298,705	5,409,712	3,633,968	1,809,445
Menominee	5,945,811	5,211,215	4,841,588	5,645,395	3,609,052	1,469,290
Gogebic	7,536,389	6,383,408	6,542,212	7,624,085	5,063,631	2,908,282
Vermillion	1,586,054	1,547,732	1,671,327	1,873,742	1,884,529	1,140,710
Mesabi	38,249,793	32,974,157	35,398,648	43,008,239	31,067,292	15,270,411
Cuyuna	2,079,276	1,982,302	2,093,479	2,596,186	1,929,189	898,090
Miscellaneous	131,950	92,654	7,426	.....	.....	.....
Total	59,972,038	52,343,336	54,853,385	66,157,359	47,187,661	23,496,228

Chart Records All Iron Ore Shipments

STEEL'S chart of Lake Superior iron ore shipments from the opening of the various mines to date will be ready for distribution soon. STEEL'S predecessor, *Iron Trade Review*, began the compilation of mine shipping records many years ago, with official reports from mine owners, operators and railroads. Practically all records now in existence are based on those figures. The new chart, including 1931 shipments, is 28 x 30 inches, on heavy coated paper, suitable for framing. Many companies use a number of them in operating, shipping and sales departments. The chart may be obtained by addressing STEEL, Penton building, Cleveland, and enclosing $2 per copy.

Develops Chrome-Vanadium Steel with Good Properties for Nitriding

A NEW steel containing chromium and vanadium and offering an unusual combination of properties for nitriding purposes has been developed by the Union Carbide & Carbon Research Laboratories Inc., Long Island City, N. Y. This steel is said to have many of the physical properties found in the S.A.E. 6100 series of steels.

Chrome-vanadium nitriding steel, as it has been designated, contains from 0.50 to 2.50 per cent chromium, from 0.30 to 2.00 per cent vanadium, and from a very low percentage up to 0.70 per cent carbon, depending upon the physical characteristics desired. It can be manufactured according to well-established plant technique.

Excess of Vanadium

Thorough investigation has shown that the presence of vanadium in an unbound form, that is, not combined as a carbide, is important in obtaining surface hardening with nitrogen. About 0.30 per cent vanadium in excess of that required for the formation of vanadium carbide is necessary, so that as the carbon content is varied, the vanadium content must be changed accordingly.

The presence of vanadium, it is said, greatly refines the grain of the base metal without increasing its hardness, so that a tough, strong, easily machinable base alloy can be used which at the same time can be surface hardened rapidly at a relatively low temperature.

Ammonia nitriding is recommended as giving the best results, particularly where a comparatively heavy case is required. A case as thick as 0.04 inch can be obtained by this method. The duplex cyanide treatment, however, is stated to be entirely satisfactory if a thin, but extremely hard case is desired.

Many advantages may be derived through use of chrome-vanadium nitriding steel, it is set forth. No extraordinary manufacturing procedures are necessary and ingots can be cast in all commercial sizes. The steel has high strength, ductility and resistance to shock. Nitriding can be carried out at comparatively low temperatures, and an extremely hard but ductile case is obtained.

Properties and advantages of this alloy steel are discussed in detail in technical bulletin No. CV-1, "Chrome-Vanadium Nitriding Steel," issued by the Electro Metallurgical Co., 30 East Forty-second street, New York.

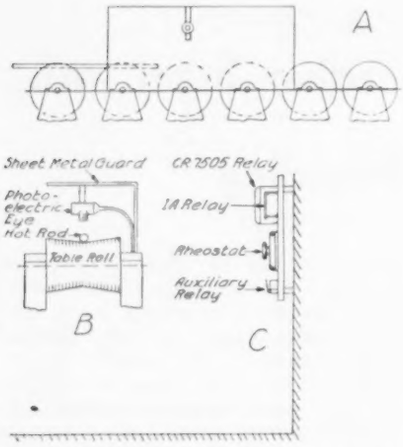
Bulletin Treats Safe Oil Industry Welding

In an effort to reduce the number of accidents in the petroleum industry caused by lack of adequate precautions and information concerning gas and electric welding, cutting and burning, the American Petroleum Institute, 250 Park avenue, New York, has published a 16-page illustrated bulletin on this subject.

The manual covers health and accident hazards, discusses the problem of training new workmen and overcoming carelessness in others, and takes up in turn gas welding, electric welding and their application to various tasks of the petroleum industry.

Operates Hot Bar Shear by Photoelectric Relay

ONE of the new uses of the photoelectric relay is to be found at the Lebanon plant of the Bethlehem Steel Co., Lebanon, Pa., where the device is used in the process of cutting hot bars to hot bed lengths of approximately 150 feet as the bar passes from the last stand of rolls to the hot bed. The desirable features of this device as contrasted with the mechanical flag switch, are that it is more readily adjustable along the hot run-out conveyor to obtain accurate lengths of bars sheared for the hot bed; and that the time element between the arrival of the bar at the photoelectric tube and the operation of the Rendleman shear is more constant than in the case of the mechanical flag.



Sketch showing the function of photoelectric tube. Table rolls and bar about to pass beneath the tube are shown at A. End view of bar on table roll is depicted at B and the relay mechanism at C

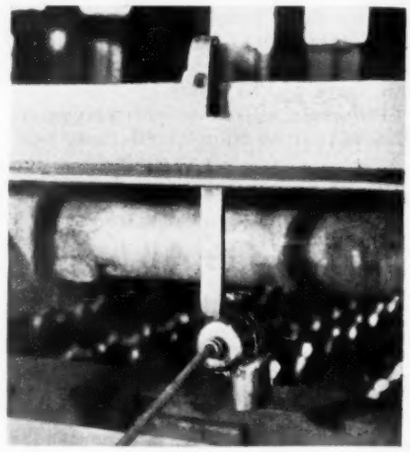
The use of an adjustable time relay first was considered, to provide intermediate rod lengths, but as it was necessary to provide for lengths increasing by increments of 6 inches, and as the rod travels at a maximum speed of 1200 feet per minute, this meant a relay with a minimum time of 1/40-second and adjustable in similar increments.

Tube Actuates Relay

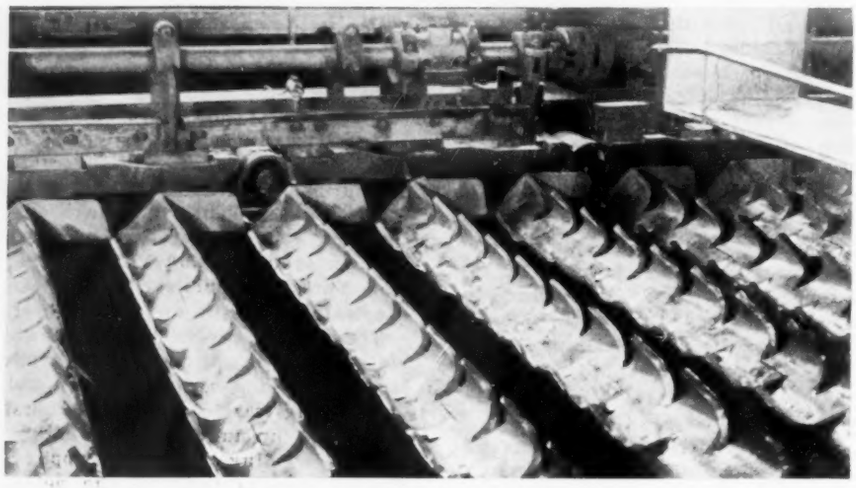
By the use of the General Electric photoelectric relay it was found the equipment could be made to operate satisfactorily. When the front end of the hot bar passes beneath the photoelectric tube, there is enough light emitted from the bar to increase the current flowing through the tube and thus actuate the relay. The photo tube is mounted above the run-out table at any predetermined point suitable for causing a cut of the proper length, and is easily movable along the table to provide for different lengths.

The change in current in the photoelectric tube is amplified by a pliotron tube mounted in the relay box some distance away. The amplified current energizes a sensitive relay in the box which causes two magnetic contactors to close. One of these operates the solenoid which throws the trough of the Rendleman flying shears and cuts the bar to the length desired. The other contactor energizes the alternating-current coil of an induction type time element overload relay.

After a predetermined time, which may be adjusted to suit the requirements, the induction type overload relay closes a 220-volt direct-current circuit which operates another magnetic contactor. This contactor controls the circuit to the magnetic clutch which engages the kick-off motor. Limit switches on the kick-off mechanism start the bed rocking mechanism, stop the kick-off mechanism after it has completed the cycle and provide interlocks as heretofore. The object of the induction type overload relay is to provide the necessary interval of time between the shearing and kick-off to allow the bar to reach the proper position in the hot run-out trough before being ejected upon the bed.



Close-up of the photoelectric tube over the rolls



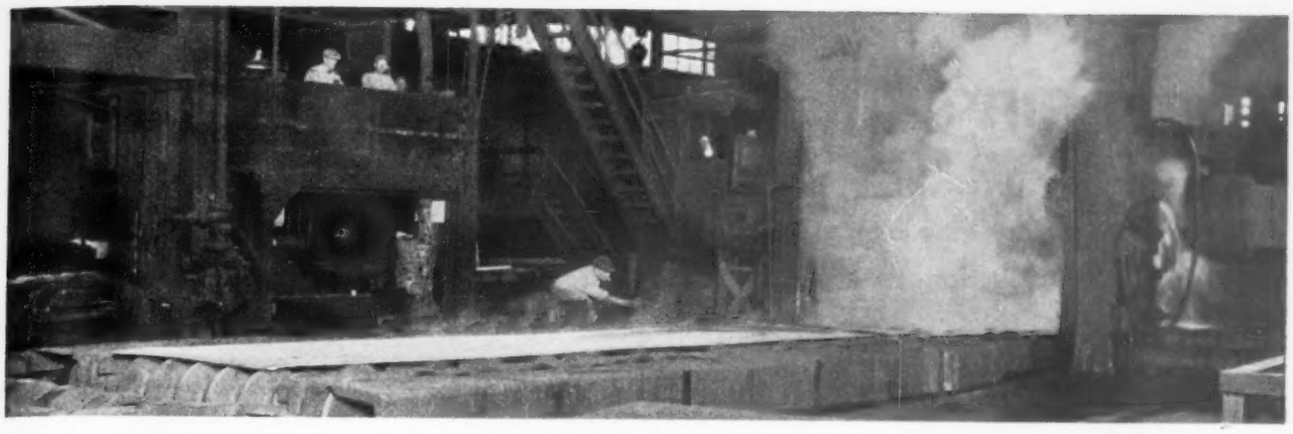
General view of the oscillating cooling bed which allows the bar to cool after it is ejected from the runout table rolls in the background

Publishes New Booklet on Stainless Steels

American Stainless Steel Co., Pittsburgh, has published a 32-page profusely illustrated booklet "Forward with Stainless" which discusses in a nontechnical way the characteristics of stainless steel, its physical properties and its many applications.

Following a general explanation of the family of stainless steels, special sections are devoted to the metal product designer, fabricator of metals, architects and builders, cutlery manufacturers, and various users. Included in the industries mentioned are food handling, automotive, laundry, refinery, paper making, chemical plant equipment, textile machinery and equipment for mines.

The booklet also contains a partial list of corrosive agents to which stainless steels are either wholly or practically immune.



PROGRESS IN STEELMAKING

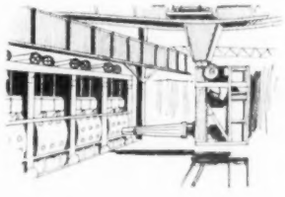
HIGH-PRESSURE water used in removing scale now is controlled automatically on a new continuous strip mill in Western Pennsylvania. The manual control valve was replaced by a photoelectric relay. The steel coming to the mill intercepts a beam of light causing the stream of water to be turned on automatically, as well as to be turned off at the right time. Consumption of expensive high-pressure water on the mill has been reduced materially.

♦ ♦ ♦

Bessemer steel of high uniform quality is obtained at a plant in this country by a recently developed method of pouring two successive heats into the same ladle. Silicon and manganese additions are made in the ladle while the first blow is being poured. When the ladle receives the metal from the second blow a thorough mixing results.

♦ ♦ ♦

On a 44-inch slabbing mill equipped with a 10,000-horsepower twin-motor drive, the usual care required in entering the steel in the trial passes is unnecessary because of the absence of roll chatter, shock, spindle noises and vibration. For this reason a saving in time on the first few breakdown passes is afforded.



REHEATING alloy steel blooms on a mass production basis is being executed at an Ohio plant in a triple-fired recuperative furnace, which has many desirable features in its design. Upon entering the furnace the blooms gradually are warmed in a 10-foot dead end, passing through a channel and main heating chamber and finally receiving their soaking at a temperature of about 2200 degrees Fahr. on a brick hearth. One of the important features is the soaking chamber where only sufficient fuel is fired to offset radiation losses and maintain the entire soaking hearth, sidewalls and roof at uniform discharge temperature. The chamber merely is used to equalize the temperature throughout the steel and to soak the blooms to the same heat condition. By this arrangement the tonnage output can be changed at will by adjusting the burners situated back of the soaking hearth without affecting the quality of heating found in the discharged blooms.

STAINLESS steel rods, wire and strip subjected to an annealing process recently developed by an Eastern Pennsylvania wire producer, are said to be left with a luster that requires only a minimum amount of buffing to impart a permanent high polish. The saving thus effected by the new annealing process has afforded consumers a substantial reduction in fabricating costs.

♦ ♦ ♦

Instead of using a vertical wheel taking a 1/16- inch cut, the diemaking department of a plant in Detroit uses the flat surface of a rotary grinding wheel which is held against the surface of the die block by a magnetic chuck. The wheel takes a cut 4 inches wide on every travel of the carriage. The machine can be set to any depth and tolerance of cut and will function until the cut is finished, and then stop automatically.

♦ ♦ ♦

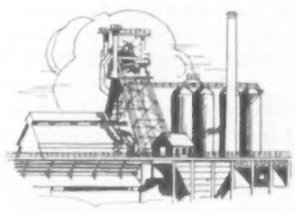
Insulated chains now are being used on hot sheet mill automatic feeders and catchers to eliminate the hazards of scratching the surface of the sheets, to lessen the amount of heat losses and to provide suitable friction for quick reversal during the rolling operation.

♦ ♦ ♦

Coating the steel pinch cams on nail machines with a 1/16-inch layer of hard-facing alloy for two-thirds of the periphery, has increased their life at one plant from 3 to 18 months.

♦ ♦ ♦

Many types of chariots are employed at steelworks in this country for transferring heated ingots from soaking pits to blooming mills but few are built with their bed formed of rollers, such as a unit in service at one plant. When this particular chariot arrives at the blooming mill, contact automatically is made with the electric circuit which controls the actuation of the mill approach table rollers. The chariot rollers then become a part of the approach table of the blooming mill and when the circuit is closed, the ingot is advanced to the mill and the chariot returns to the soaking pits for reloading.



BY INCREASING the top diameter of a stack in the Pittsburgh district from 16 to 18 feet, the flue dust production has been decreased to 171 pounds per ton of iron or 49 per cent of former practice.

Scanning the Technology of Steel

A Digest of Important Developments in Scientific Research, Engineering Progress and Operating Procedure Pertaining to the Production, Processing, Application and Performance of Steel

Rivet Heating

Rivet heating methods in common use, by D. W. Frye, in Industrial Gas, January, 1932, p. 17, 2½ pp., 5 illusts.

The upper critical temperature of the low-carbon steels of which rivets are made is about 1700 degrees Fahr. Hence the maximum temperature to which the rivet should be heated for forging is approximately 1750 degrees Fahr., or the equivalent of a bright orange coloration. At higher temperatures, particularly where the rivet is soaked in the furnace at 2000 degrees Fahr. or over for any appreciable period, the grain size is increased, proportionally decreasing the elastic limit and tensile strength.

Methods for heating rivets include the use of coal or coke forges, oil-fired furnaces and gas furnaces, and range from crude and uncontrollable results to precise and well regulated results. A high-pressure gas furnace is described and its advantages cited.

—STEEL, 2-1-32

Composite Brake Drum

New type of drum with outer steel ring and centrifugally cast iron friction surface, in Automotive Industries, Jan. 16, 1932, p. 90, 2½ pp., 6 illusts.

Known as the Centrifuse brake drum, it comprises a foundation ring preformed of strip steel stock, provided with a lining of cast iron introduced into the ring while in the molten condition and while the ring is at a high temperature and is being rotated at high speed, so that the iron is fused to the steel while subjected to centrifugal force. The steel ring is made with a circumferential bead to keep the drum round under braking conditions and to function as a sealing bead for the fused iron. One ring makes the contact rings for two brake drums, the drum back being projection welded at 12 points to a flange on the fused ring.

A strong bond results between the steel and iron, some of the carbon freed from the iron in the fusion penetrating the steel for a considerable distance. Thickness of the steel ring varies with diameters and brake loads. For an 11-inch drum 3/32-inch steel stock is used. Advantages cited are reduced wear of drum and lining, more rapid heat dissipation, a tendency of the drum surface to retrue itself in the course of service and less frequent need for adjustment and repair.

—STEEL, 2-1-32

Electric Hardening

A consideration of the factors influencing the heat treatment of high-speed steel, by A. G. Robiette, in Iron and Steel Industry (England), p. 171, 6½ pp., 6 illusts.

Hardening a simple lathe tool does not exact the same precautions as the hardening of a more complicated tool such as a twist drill. Many factors must be considered, including scaling and decarburization, preheating, overheating, distortion and the composition of the steel. Distinct stages in the hardening routine for high-speed steel are: Slow preheat to about 800-900 degrees Cent.; rapid heat to hardening temperature, 1260-1300 degrees Cent.; rapid cooling or quenching; and the subsequent tempering at temperatures up to 590 degrees Cent.

Each step of this routine is discussed in detail, together with electric furnace equipment suited for the work. Advantages of the salt bath method of hardening high-speed steel are pointed out and a description of various types of salt baths, for both single-phase and three-phase power, is presented with the aid of diagrams. Favorable results with the use of induction salt baths are outlined.

—STEEL, 2-1-32

Welding Standards

Importance of standardization in the welding industry, by C. G. Watson, in Welding, January, 1932, p. 30, 4 pp., no illusts.

Although some information has been published on welding methods, processes, requirements and tests, as well as various welding codes, there remains a need for general standardization of welding practice. By such standardization and standard codes it becomes possible to establish a confidence in welding and welded products, to remove the doubt and uncertainty as to what one will receive or may hope to receive by specifying welding, to tear down the barrier that now stands across the path to acceptance of welding, to furnish customers a standard and uniform means of specifying and judging welded products, to increase the amount of welding many fold, to improve the general quality of the work, to improve the general conditions by the elimination of unscrupulous competition and to establish welding in its proper place in industry.

In order to accomplish the work of standardization in an efficient and capable manner a balance must be struck between the views and opinions of the architect, the engineer, the builder, the welder, the manufacturer of welding equipment and the consumer. It is suggested that this task might be followed through by the American Welding society.

—STEEL, 2-1-32

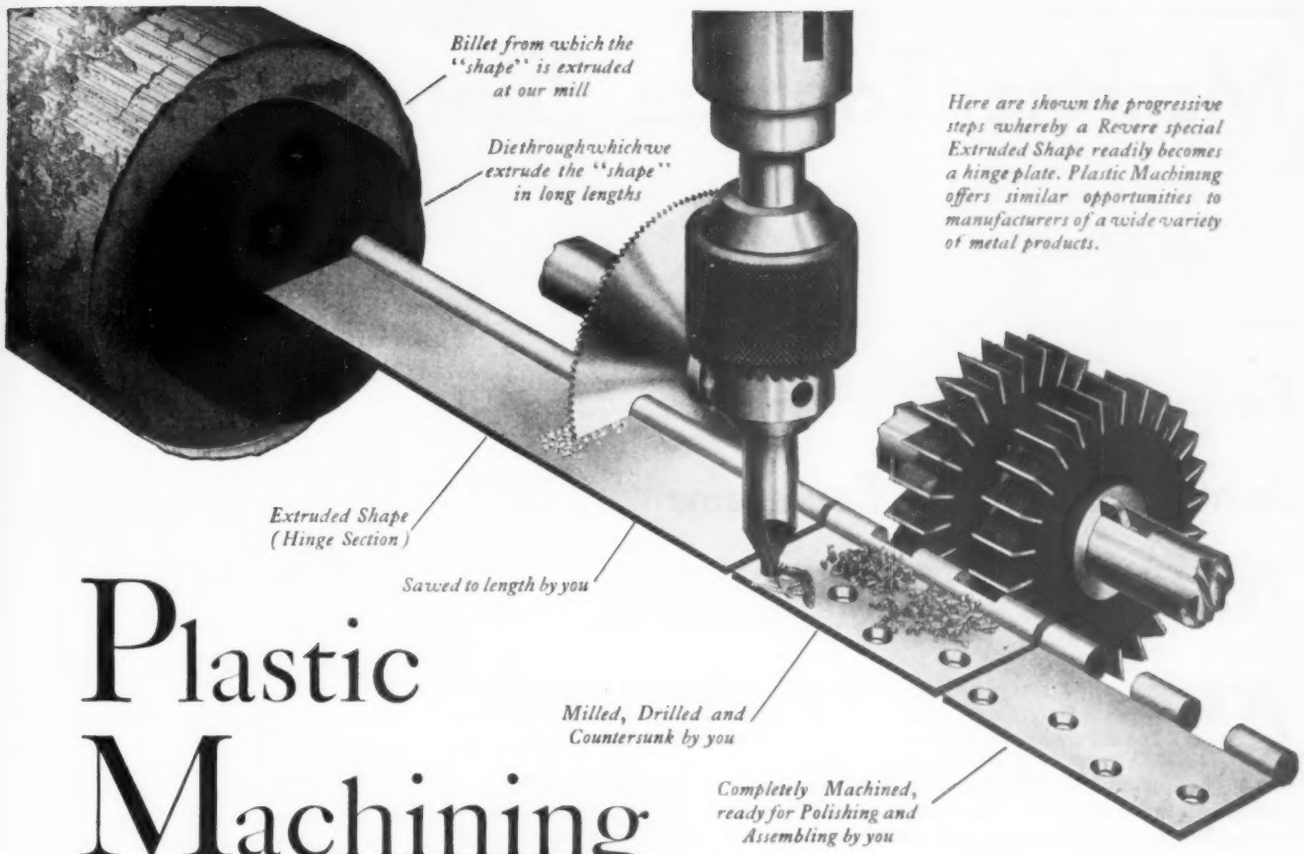
Cold Rolling

Cold rolling of metal parts in mass production, by James R. Cornelius, Coventry, England, in American Machinist Jan. 7, 1932, p. 2, 6 pp., 13 illusts.

Cold rolling machines are designed to produce with a minimum of scrap since they operate on the principle of plastic flow. Changes in the plastic condition of the metal under stress vary with pressure applied, speed of recurring contacts of each particle of the work and roller, time taken and nature of the material worked.

An instance is cited of a 2 per cent nickel-steel sprocket wheel that originally was drop forged and required 900 pounds of material per 1000 pieces. Output of the hammer was 85 pieces per hour, with 16 machine operations following. For cold rolling, material requirements were 560 pounds per 1000. Preliminary blanking was at the rate of 85 per minute, with the subsequent rolling operation producing 120 per hour, with only two machine operations following.

—STEEL, 2-1-32


Billet from which the "shape" is extruded at our mill
Die through which we extrude the "shape" in long lengths
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With the uniformity of size and the smoothness of surface obtained in a Revere Forging, rapid handling and accurate work in jigs and fixtures are insured; also, automatic or semi-automatic machine feeding becomes possible.

With special holders or chucks, Revere Extruded Shapes may be fed into turret lathes or screw machines in long lengths, where they may be turned or drilled as readily as concentric rods. Or they may be sawed into short lengths and hot or cold forged with great economy in press operations and with a very material saving in the amount of flash, which is waste.

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Machine Tools and Plant Equipment

«Without machine tools modern machinery could not be built.»
—Joseph W. Roe

Equipment Industries Should Organize Joint Campaign for Replacement

BY ERNEST F. DuBRUL
Consulting Management Engineer, Cincinnati

A FUNDAMENTAL economic principle necessarily makes demand for industrial equipment fluctuate more widely in the business cycle than does demand for products turned out by the use of this equipment. This is not a pleasant fact at a time of general and unusually deep slump in demand for practically all consumer goods, but nevertheless, it is a fact which, due to their customers' buying habits, builders of production equipment are compelled to recognize.

The metalworking equipment industry, including of course builders of machine tools, is the one which furnishes production equipment to all the other metalworking industries. Therefore the slump in sales of this metalworking equipment in a depression period is exceedingly serious. In the critical year of 1931 this slump would have been even worse than it was except for certain foreign orders placed in the early part of that year. As it was, employes of the industry have suffered grieviously from unemployment, due to this painful variability in demand.

Intensive Design Activity

From the point of view of design, recent months have been unusually fruitful. Despite the depression, engineering and research have been pushed forward faster than ever before. More and more types of production machinery have had incorporated into their design such improvements as: Antifriction bearings, automatic centralized lubrication systems; electrical controls which can be operated from various stations; pneumatic loading and work-holding devices; materials handling devices built in as integral parts of the machine; improved feed works and control systems—both mechanical and hydraulic; and automatic gaging and tool guiding devices.

All these improvements will save much human time, thought and effort. They will save enormously in production costs, thereby paying handsome returns to users who invest in equipment embodying them. But even so, this improved equipment is proving to be difficult to sell, even to those users who have ample cash with which to make such purchases. When business does pick up, those relatively few users who in the meantime will have installed this improved equipment, will have a decided lead over their numerous competitors who will find themselves struggling along with obsolete machinery in the next period of production activity.

What About Replacement?

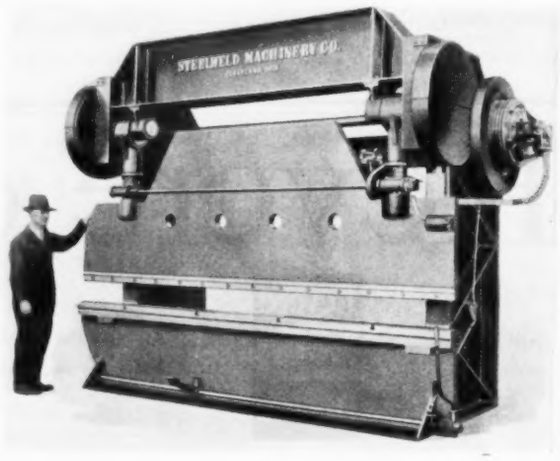
In the last few years, study of management has been more widespread than ever before and such study has repaid its cost over and over again. However, it is surprising to find how few are the concerns—large or small—which have worked out sound economic policies for replacing obsolete and worn-out plant equipment. Money spent for equipment replacement too often is a mere shadow of deductions from gross income taken for depreciation on tax returns.

The entire equipment industry faces the pressing necessity of educating equipment users to the need for establishing economically sound financial plans for systematic replacement. A broad, general campaign of education toward this end is plainly indicated. How long will it be before leading executives of the equipment industry realize the enormous benefits of such co-operative effort?

◆

Bending Brakes Built Up of Welded Sections

Steelweld Machinery Co., East Seventieth and Machinery avenue, Cleveland, has announced the development of a new line of welded rolled steel bending brakes, typical of which is the one shown in the illustration. Following conventional brake and press design, whereby power is applied through overhead eccentrics to the moveable and adjustable ram, these new units will meet all requirements demanded of this class of equipment. The hous-



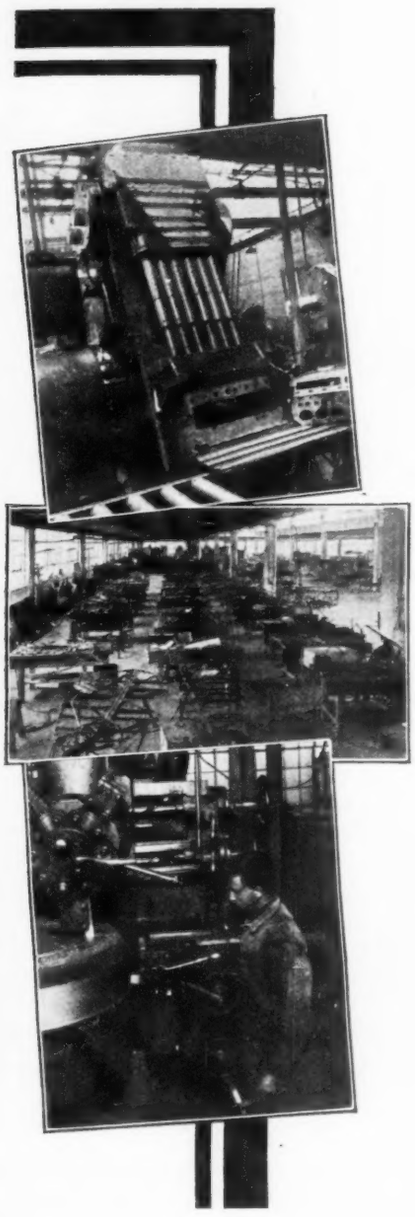
WELDED rolled steel bending brake developed by Steelweld Machinery Co. has ram and bed of ample depth, overhung at one end, providing advantages in jobbing work as well as longer die surface for narrow work

Alloy steel and iron bear the brunt

The past decade's revolutionary advance in the application of high speeds, high pressures, and high temperatures to mechanical production and chemical processes has necessitated the working out of a tremendous number of alloy steel and iron analyses, each designed to meet some specific requirement of this new age.

High strength at high temperature . . . high strength combined with light weight . . . complete resistance to corrosion under varying conditions . . . increased wear resistance . . . immunity from the effects of shock and fatigue . . . these are but a few of the manifold demands that are met daily by the proper use of Ferro-Alloys.

Any metal part used in your product or equipment can be benefited by some one or more of the inherent advantages of Ferro-Alloys. It will pay you to investigate thoroughly the latest developments in high temperature metallurgy and to let Electromet Engineers explain how required physical and chemical properties may be provided by the use of Ferro-Alloys.



Sole Distributors

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ings are built up of welded sections. Stress members in the throat are heavy and so arranged that deeper throats can, with safety, be supplied.

In these machines, both ram and bed are of ample depth and are overhung at one end, providing advantages in jobbing work as well as providing longer die surface for narrow work. Operating levers move on ball bearings, eliminating friction to a large degree and thereby reducing operator fatigue. All gears are steel, the high speed gears being of the herringbone type.

An advantageous feature stressed by the manufacturer is the ball joint connection. It is claimed that this is unbreakable in service. The flywheel is of rolled steel, mounted on tapered roller bearings. Eccentrics are forged solid with main shafts. Power elevation of the ram is attained electrically. This mechanism is self locking and the motor is designed to stall before damage can occur to the mechanism. Centralized pressure lubrication is provided.

Steelweld Machinery Co. is associated with Cleveland Crane & Engineering Co. The organization is prepared to manufacture brakes of all sizes and tonnages, those with longer strokes, deeper throats, increased die clearances or width of bed and ram being readily obtainable, without the usual delay in production of such special units.

◆

New Presses Are Allsteel Sideplate Type

Oilgear Co., 1301-1417 West Bruce street, Milwaukee, recently developed a new line of allsteel sideplate type vertical presses, particularly adapted for performing broaching and general manufacturing operations. Floor space required for these units measures 28 x 45 inches. The illustration at the right of this page shows one of these new presses.

The heavy one-piece welded steel structure provides a high degree of rigidity and alignment. Entire mechanism of these presses including the constant displacement pump, electric motor and drive, lubricant pump, tubing and control, is enclosed in the frame structure with convenient space for making adjustments. Press cylinder construction includes bored and honed cylinder tube, piston ring type piston, large ram, bronze guide and molded ram packing.

Hand and foot pedal control with adjustable stroke limit stops are standard equipment. Single speed semiautomatic control is extra. These presses are arranged for either Texrope or Dayton Cogbelt motor drive only. Copper tubing and extruded brass fittings are used for connecting the pump to the press cylinder.

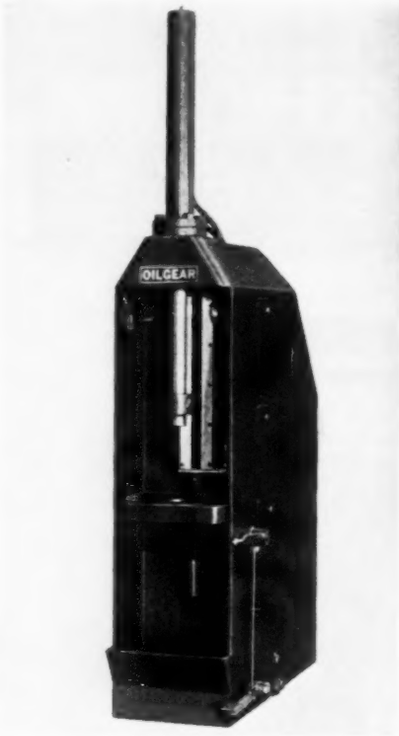
◆

Special Machine Splits New Type Brake Drums

Sundstrand Machine Tool Co., Rockford, Ill., has developed a special brake drum splitting machine to meet requirements of a novel process of producing the new "Centrifuse" cast iron lined steel units as outlined on page 40 in this issue of STEEL. The advantage of handling these drums as double width combinations through the centrifugal casting operation is that the resulting symmetrical steel section is much easier to roll form and also because the flanged edges of the combination prevent molten metal from being thrown out during the centrifugal operation of casting and fusing in the cast iron lining.

In this machine, shown in the illustration below, the operator places the double width drum ring on the loading platform and the work carrier B. He then turns the carrier by means of a knurled ring which operates a three-jaw chuck, gripping the piece lightly from the inside so that after the parting tools have completely split the combination into two parts, both halves are held securely, thereby eliminating any possibility of tool breakage.

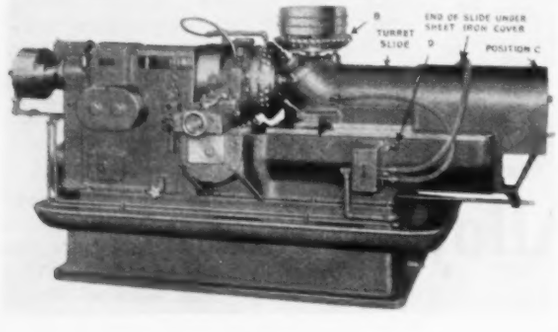
After the splitting operation the slides automatically return on rapid traverse to loading position. Movement of the slides automatically releases the air and causes the chuck



Oilgear allsteel sideplate vertical press recently introduced

to open, the movement of the chuck draw rod automatically operating a limit switch and causing the spindle to stop. When the cutoff slides are fully returned, valve D is automatically operated, causing the turret slide to return to position C, at which position turret B automatically indexes 180 degrees, bringing finished work—that is the two halves—to unloading position at the same time bringing another combination to chucking position. The operator again operates valve D, causing the turret slide to approach and automatically place the assembly into the chuck jaws in which position the piece is automatically clamped. The operator then presses the starting button causing the spindle to rotate and the slides to advance on rapid traverse to the work and then to continue their advance at proper cutting speed.

Four tools are used for the cutting-off operation, two being mounted in the rear slide and two in the front slide. In each case one tool



SUNDSTRAND MACHINE TOOL CO. has developed this special machine to split "centrifuse" cast iron lined brake drums produced as double width combinations

is mounted directly over the other, the upper one being set slightly in advance and ground for maximum tool life, the bottom tool finishing the sides of each half. Front and rear slides are so timed that the rear slide is set ½ of the feed per revolution in advance of the front slide and, thereby, the total advance per each revolution is twice that of the feed used on each slide.

◆

Unit Developed To Provide Variable Speeds

Smith Power Transmission Co., 434 Penton building, Cleveland, is marketing a new I. V. S. variable speed unit which is mounted on the driven shaft and can be adjusted from zero to a maximum speed for a set ratio by turning a handwheel or screw. Ratios can be obtained as high as nine to one. The unit is so constructed that it can be used as the driven pulley for flat belt, driven sprocket or silent or roller chain or driven sheave for V-belts. It is shock absorbing and does not exert any additional bearing loads. In mounting, no special supports, bases or foundations are needed. Units are now available up to five horsepower.

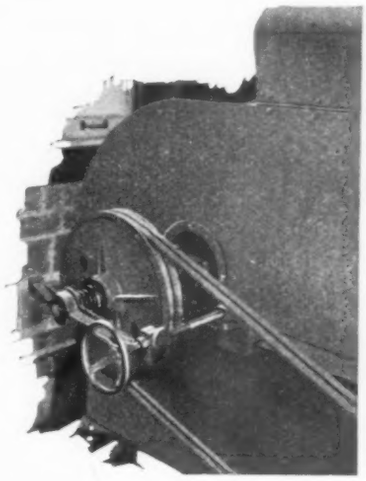
One part of the unit, shown herewith, is keyed to the shaft to be driven, while the other portion is driven by the chain or belt. Increasing the pressure on the spring, shown at the side, brings a friction facing on one part to bear against the other and the shaft is driven. On the inside of the unit there are free-swinging weights, which when the speed of the shaft and the consequent centrifugal force reaches a predetermined amount are moved outwardly, and, through inclined cams, separate the two portions of the unit, stopping the driving action. As soon as the speed drops below the set amount, the spring forces the friction faces back into contact.

Spring pressure can be set to any amount giving an infinite number of speeds at which the mechanism will drive. The centrifugal force acts instantly at the upper limit and the spring gives positive action as soon as the speed drops. The action of the driven shaft consists of practically a constant speed drive.

◆

Improvements Feature New Micromatic Hone

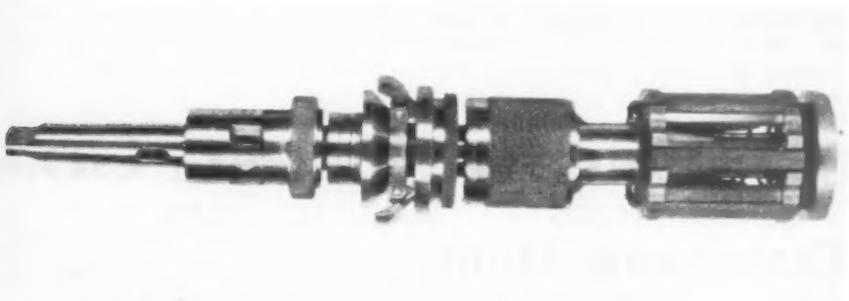
Micromatic Hone Corp., Detroit, recently announced an improved automatic hone equipped with a micrometer adjustment. The shells in which the abrosive stones set are designed to correct uneven stone wear



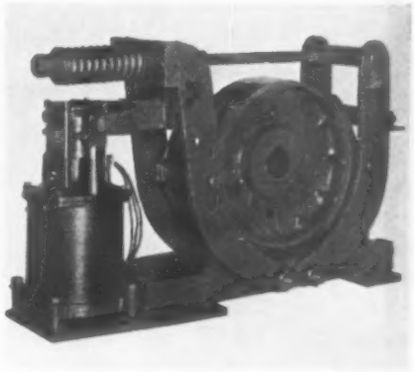
Variable speed unit marketed by Smith Power Transmission Co.

and to eliminate the possibility of scoring the cylinder wall.

Other improvements consist of a drive ball made solid with a drive shaft to increase the strength of the tool, while all wearing surfaces are carburized, hardened and ground. A recoil spring has been added to insure quicker and more positive collapse than was possible with the older model made by the Micromatic



Improved and strengthened honing tool manufactured by Micromatic Hone Corp. is fitted with a micrometer adjustment



General Electric shoe-type, thrustor-operated brake

company, while the bearings on the bodies and flanges have been made wider to insure better fits and easier assembly.

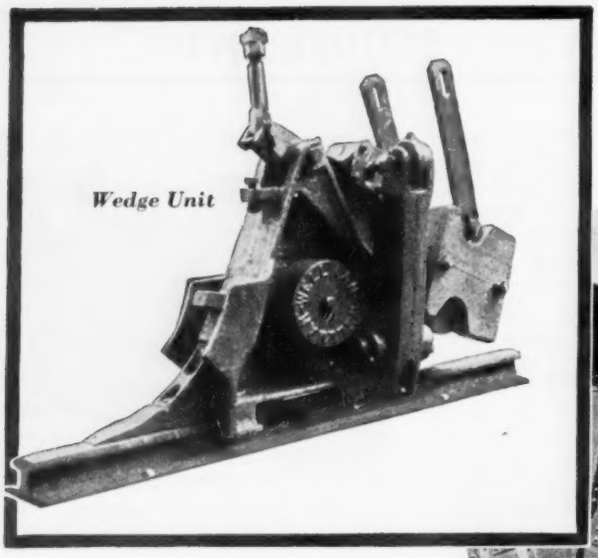
It is pointed out that the foregoing improvements do not change the basic principles of design and construction of this tool, which operates on the single-cone principle. The single cone contacts each individual stone at the center. Thus each stone rocks independently of the others, which is said to compensate for uneven stone wear. The stones are mounted in soft steel stampings which are discarded when the stones wear out.

◆

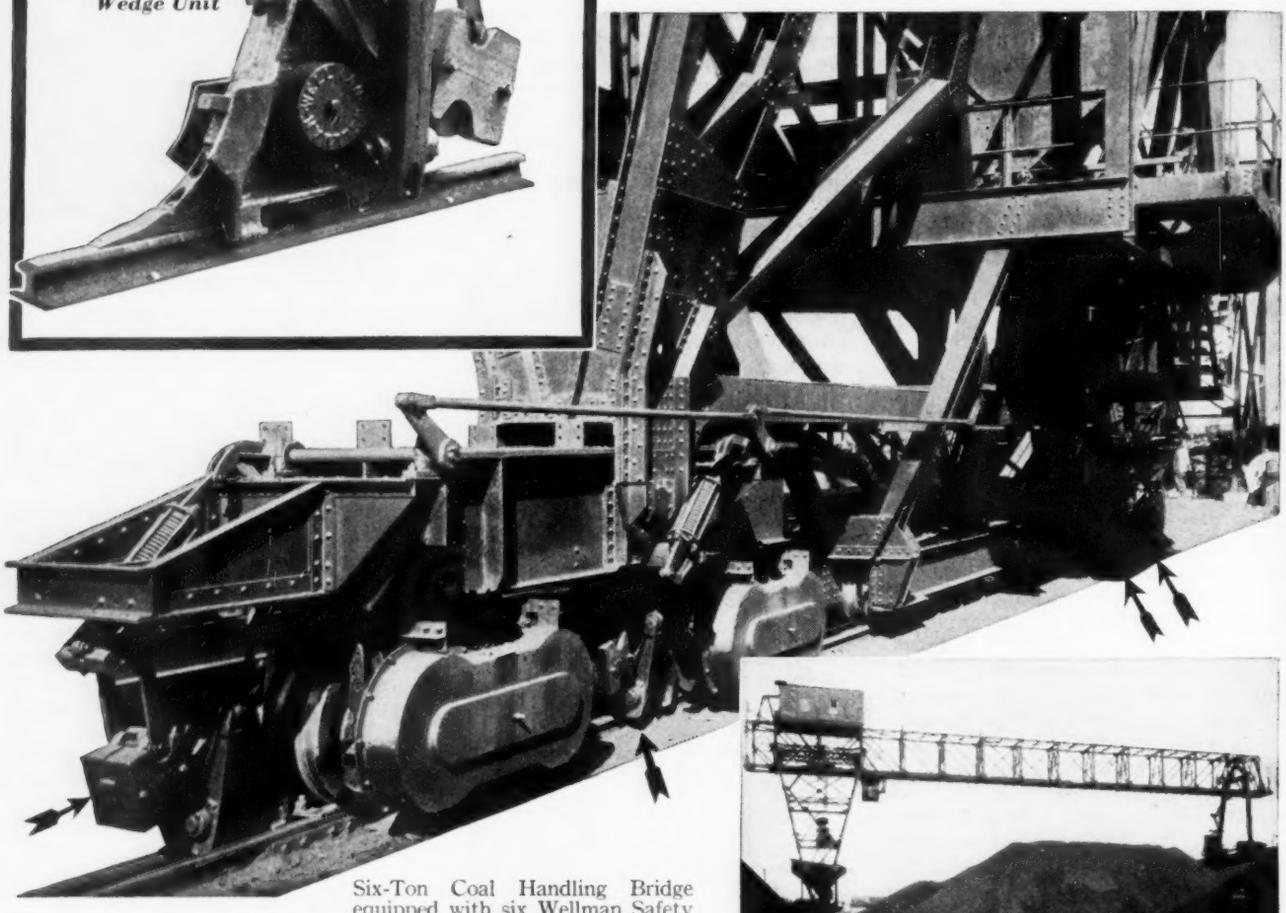
Newly Designed Brakes Have Wide Application

General Electric Co., Schenectady, N. Y., has announced the development of shoe-type, weatherproof thrustor-operated brakes for alternating-current motors on mill, crane, hoist and similar applications where severe requirements must be met. These brakes, one of which is shown in an accompanying illustration, provide quick, cushion-like braking in either direction with either light or heavy loads, and are adjustable for braking over a wide range.

Characteristics of the thrustor make it particularly well adapted as an operating medium. It operates well within the time required to release and set a brake satisfactorily. In a fraction of the time required for the device to move through its complete stroke, the motor comes to full speed and the speed of thrust remains constant during the remainder of the stroke. The uniform speed characteristic also results in a smooth, cushion-like setting when the brake is de-energized. The use of the thrustor minimizes braking mechanism inertia, shock and noise.



SAFETY STOPS
FOR TRAVELING STRUCTURES



Six-Ton Coal Handling Bridge equipped with six Wellman Safety Stops—four on pier leg serving all of the trucks and two on the shear leg serving the outside wheels.

WELLMAN Safety Stops are extremely simple and positive in operation—and have an abundance of strength and holding power to assure the maximum dependability in unusually heavy winds. The wedge units are smoothly operated by a special mechanism controlled by a button in the operator's cab, and should the current fail they will set by gravity and stop the bridge without shock. Ask Wellman engineers for details.

• • •

WELLMAN PRODUCTS INCLUDE:

Steel Mill Equipment . . Coal and Ore Handling Equipment . . Car Dumpers, all types . . Williams Buckets and Trailers . . Gas Producers, Flues, etc. . . Gas Reversing Valves . . Blast Furnace Skip Hoists . . Safety Stops for Traveling Structures . . Special Cranes . . Port and Terminal Equipment . . Mining Machinery . . Castings and Machine Work to customers' drawings.

THE WELLMAN ENGINEERING CO.

ENGINEERS CONSTRUCTORS MANUFACTURERS

CLEVELAND, OHIO

WELLMAN

BIRMINGHAM • NEW YORK • MEXICO

Steel Demands Show Further Gain

Operations Continue To Rise, 28½ Per Cent Indicated for This Week---
Sentiment Aided by Easing of Financial Strain and Rail Wage Settlement

IMPROVEMENT in steel is progressing through slow, tortuous stages, with sentiment strongest in a year. Early in January this sentiment was nourished only by the mild upturn in production; now it is drawing support from the easing of the general business strain, emergency enactments at Washington and successful conclusion of negotiations for reduced railroad wages—all exerting a favorable influence on demand for steel.

This sentiment survives the drear fourth-quarter financial reports, which present only a summation of what already was known and indicate that the losses do not represent actual operating deficits but rather chargeoffs which are a bookkeeping operation.

As January ended, steelmaking operations averaged 28½ per cent, a gain of 1½ per cent over the previous week, with indications that the rate would hold for this week, an increase at Chicago probably offsetting reductions at Pittsburgh and Buffalo. For January, production averaged 25½ per cent, the total rise for the month being 6½ points. For January, 1931, the average was 43 per cent and the rise 11 points.

Markets in the Middle West and Far West appear to have a brighter, stronger tone than those in the East. Spring requirements are in evidence; building construction is more active; many municipalities are purchasing pipe. At San Francisco over 38,000 tons of structural shapes are up for bids; 13,000 tons are required for federal buildings at St. Paul, Minneapolis and St. Louis.

An otherwise good automobile production situation is clouded by lack of knowledge as to Ford's plans, and apprehension that he will name extremely low prices on the revised 4-cylinder model. Ford has released small lots of parts on which final decision has been reached; Detroit expects almost daily the placing of a large tonnage of steel, and that by the end of February Ford will have produced sufficient cars to make a definite announcement to dealers. January output of passenger cars and trucks in the United States was approximately 125,000, 10 per cent more than in December, but 30 per cent less than in January last year.

A number of rail inquiries are expected to develop as a consequence of the railroad wage settlement and the recent freight advance, but it is doubtful if orders will extend beyond routine requirements. Railroad purchases of all descriptions last year were 40 per cent under 1929. The Lackawanna is in the market for 16,000 tons of rails in addition to 4000 tons released recently; the Nickel Plate is expected to inquire this week for 18,000 to 20,000 tons. Western Fruit Express has purchased 100 underframes; car orders are slightly larger in the East. Long distance pipe line projects continue to hang fire; action on the 10,000-ton Milwaukee extension of the Texas-Chicago gas line is expected in the spring.

The price situation is aggravating, slight improvement in business tempting makers to further concessions, especially in sheets and strip. At Chicago and Pittsburgh sheet bars are down $1. Bolts, nuts and rivets are easier in the East, on adjustments to a parity with the price of Belgian steel bars. Competition from foreign sources also is apparent in other directions. Twenty thousand tons of English iron has been purchased by a Delaware river pipemaker. Dutch iron at Providence, R. I., has weakened the eastern market; low freight rates enable European tin plate makers to invade the west coast.

Due mainly to the reduction in sheet bars, STEEL's iron and steel composite is off 8 cents to $29.92, while a reduction in galvanized sheets brings the finished steel composite down 20 cents to $47.22. The scrap composite remains $7.96.

Composite Market Averages

	Jan. 30	Jan. 23	One Month Ago (Dec., 1931)	Three Months Ago (Oct., 1931)	One Year Ago (Jan., 1931)	Ten Years Ago (Jan., 1922)
Iron and Steel Composite	$29.92	$30.00	$30.32	$30.74	$31.71	$33.35
Finished Steel Composite	47.22	47.42	47.74	48.22	49.30	50.54
Steelworks Scrap Composite	7.96	7.96	8.16	8.50	10.49	11.31

Iron and Steel Composite:—Pig iron, billets, slabs, sheet bars, wire rods, pipe, tin plate, nails, sheets, plates, shapes, bars. Finished Steel Composite:—Plates, shapes, bars, hot strip, nails, tin plate, pipe. Steelworks Scrap Composite:—Melting steel, compressed sheets.

Comparative Prices of Iron, Steel and Coke

Representative Market Figures for Current Week, Last Month, Three Months and One Year Ago

	Jan. 30, 1932	Dec., 1931	Oct., 1931	Jan., 1931
PIG IRON				
Bessemer, del. Pittsburgh	$17.26	17.51	18.16	18.76
Basic, valley	15.00	15.00	16.50	17.00
Basic, eastern del. eastern Pa.	16.00	16.00	16.25	17.25
No. 2 foundry, del. Pittsburgh	17.26	17.51	18.16	18.26
No. 2 foundry, Chicago	16.50	16.60	17.20	17.50
*Southern No. 2, Birmingham	12.00	12.00	12.00	14.00
**No. 2X, Virginia furnace	18.00	18.00	18.00	18.25
**No. 2X, Eastern del. Phila.	15.76	16.01	17.26	18.26
Malleable, valley	16.00	16.10	16.90	17.50
Malleable, Chicago	16.50	16.60	17.10	17.50
Lake Superior, charcoal, del. Chi.	23.04	20.79	25.04	27.04
Gray forge, del. Pittsburgh	16.63	16.88	17.53	17.63
Ferromanganese, del. Pittsburgh	79.85½	84.79	89.79	89.79

*1.75-2.25 silicon. For local delivery. Northern shipments based on $10 to $11, Birmingham. **2.25-2.75 silicon.

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c per gross ton, beginning Jan. 4, 1932.

COKE				
Connellsville furnace, ovens	2.25	2.30	2.40	2.50
Connellsville foundry, ovens	3.25	3.25	3.25	3.30
SEMIFINISHED MATERIAL				
Sheet bars, open-hearth, Youngs.	26.00	28.00	29.00	30.00
Sheet bars, open-hearth, Pitts.	26.00	28.00	29.00	30.00
Billets, open-hearth, Pittsburgh	27.00	29.00	29.00	30.00
Wire rods, Pittsburgh	37.00	35.00	35.00	35.00

	Jan. 30, 1932	Dec., 1931	Oct., 1931	Jan., 1931
FINISHED MATERIAL				
Steel bars, Pittsburgh	1.60	1.60	1.60	1.65
Steel bars, Chicago	1.70	1.60	1.70	1.70
Steel bars, Philadelphia	1.81	1.89	1.89	1.94
Iron bars, Chicago	1.70	1.60	1.70	1.70
Shapes, Pittsburgh	1.60	1.50	1.60	1.60
Shapes, Philadelphia	1.65	1.69½	1.76	1.81
Shapes, Chicago	1.70	1.60	1.70	1.70
Tank plates, Pittsburgh	1.60	1.50	1.60	1.65
Tank plates, Philadelphia	1.69½	1.73½	1.80½	1.81½
Tank plates, Chicago	1.70	1.60	1.70	1.70
Sheets, No. 10 blue anneal., Pitts.	1.75	1.85	1.85	2.05
†Sheets, No. 24, hot. ann., Pitts.	2.15	2.40	2.40	2.35
Sheets, No. 24, galvan., Pitts.	2.70	2.90	2.90	2.90
Sheets, No. 10 blue anneal., Chi.	2.00	2.00	2.00	2.50
†Sheets, No. 24, hot, ann., Chi.	2.45	2.55	2.55	2.20
Sheets, No. 24 galvan., Chi.	2.95	3.05	3.05	3.05
Plain wire, Pittsburgh	2.20	2.20	2.20	2.20
Wire nails, Pittsburgh	1.95	1.95	1.90	1.90
Tin plate, per base box, Pitts.	4.75	4.75	4.75	5.00

†Comparisons are with old classification No. 24 black sheets.

SCRAP				
Heavy melting steel, Pitts.	$10.25	10.25	10.45	13.00
Heavy melting steel, eastern Pa.	7.50	7.65	8.20	10.50
Heavy melting steel, Chicago	7.00	7.50	7.75	10.00
No. 1 wrought, eastern Pa.	9.25	9.50	9.50	13.25
No. 1 wrought, Chicago	7.25	7.40	8.00	9.50
Rails for rolling, Chicago	10.00	10.00	10.50	13.00

Sheets

Increase in Automotive Orders Slow—Prices Easy — Seasonal Requirements Appear

SHEET PRICES, PAGE 49

Pittsburgh — Automotive demand for sheets is increasing slowly and although tonnage still is light this buying is one of the principal supports to recent activity. Expansion in orders from the Ford Motor Co. is regarded as encouraging. Releases to parts suppliers of this company are more numerous. Orders from other automotive interests are little changed in the aggregate. Specifications from miscellaneous consumers continue quiet. Prices continue easy with occasional concessions noted. Hot-rolled annealed sheets are 2.15c to 2.25c. Galvanized sheets generally are 2.80c although lower prices have appeared in the East. Blue annealed sheets continue 1.75c to 1.85c, with autobody off slightly at 2.85c to 2.95c. American Stainless Steel Co. has announced a change in the base finish of stainless sheets, resulting in the adoption of a hot-rolled, annealed, pickled and cold-rolled sheet as the base finish. Formerly an extra of 3 cents per pound was charged for cold-rolled full-finished sheets so that the new base prices have been advanced 3 cents in order not to change net price quotation levels.

New York—Sheet prices still are unsettled enough to discourage a certain amount of business that might otherwise be placed. Demand for galvanized sheets is particularly affected by light building operations.

No. 24 hot-rolled annealed sheets now are 2.50c, delivered, New York. Galvanized are 3.10c to 3.15c. The market is quiet.

Philadelphia — Galvanized sheets are easier at 3.01c to 3.11c, delivered. No. 10 hot-rolled are holding at 1.86c to 1.96c; No. 10 blue annealed, at 2.01c to 2.11c. Although there is a fair movement of autobody sheets, miscellaneous demands are dull.

Buffalo—Sheet demand continues spotty, with district mills operating at about 30 per cent. Hope is expressed early spring output will be heavier.

Youngstown, O.—The bulge in the sheet demand which started with the opening of the new year is subsiding though hopes are held that early February will witness a renewel of buying. The slowing down has been noticed mainly in the automotive industry. Demand upon mills making common black and galvanized sheets appears to be widening in the Middle West.

Cleveland—Fisher Body Co. closed on a round tonnage of sheets and strips last week for its Cleveland plant, though details are lacking. This division is now completing a 50,000-car month and its press room is working at capacity on two 8-hour shifts.

Prices are fairly steady, though rumors of weakness are heard. Several blue annealed sales recently have been on the basis of 1.65c to 1.75c, Pittsburgh, and a readjustment in metal furniture grades makes No. 10 gage quotable at 2.55c to 2.65c, Pittsburgh; No. 20 gage, 3.15c to 3.25c.

Cincinnati—Sheet mill production schedules are being held close to 40 per cent. Better credit conditions in the South may bring out early buying.

Chicago—Spring demand for roofing products is beginning to materialize. Inquiries are appearing from the Southwest. Refrigerator makers also are specifying at a heavier rate. Chicago district sheet production is 25 to 30 per cent, although in another ten days capacity will be increased materially by the addition of the leading independent's new continuous sheet-strip-plate mill.

Secretary of State Charles M. Armstrong, Denver, will open bids Feb. 15 on 797,540 license plates for Colorado for 1933.

Current Finished Steel Prices

Delivered prices subject to freight surcharge corrected to nearest ½c. Prices in cents per pound unless otherwise stated

Steel Sheets

HOT ROLLED No. 10

Pittsburgh, base	1.60c to 1.70c
Gary, Ind. Harbor, base	1.70c to 1.80c
Chicago, del.	1.75c to 1.85c
New York, del.	1.95c to 2.00c
Birmingham, base	1.75c to 1.85c
Philadelphia, del.	1.86c to 1.96c

BLUE ANNEALED NO. 9-10

Pittsburgh, base	1.75c to 1.85c
Chicago, district mills	1.95c
Chicago, delivered	2.00c
Philadelphia, del.	2.01c to 2.11c
New York, del.	2.10c
St. Louis, delivered	2.12½c
Birmingham	2.00c
San Francisco c.i.f.	2.35c

HOT ROLLED ANNEALED NO. 24

Pittsburgh, base	2.15c to 2.35c
Gary, Ind. Harbor, base	2.30c to 2.40c
Chicago, del.	2.45c to 2.55c
New York, del.	2.60c
Philadelphia, del.	2.56c
Birmingham, base	2.45c to 2.55c
St. Louis, del.	2.62½c
San Francisco, c.i.f.	2.90c

GALVANIZED NO. 24

Pittsburgh, base	2.70c to 2.80c
Gary, Ind. Harbor, base	2.90c to 3.00c
Chicago, del.	2.95c to 3.05c
Philadelphia, del.	3.01c to 3.11c
Birmingham, base	3.05c
St. Louis, del.	3.17½c
San Francisco, c.i.f.	3.40c

AUTOMOBILE NO. 20

Pittsburgh, base	2.80c to 2.90c

FURNITURE

Pitts., No. 10 heavy	2.55c to 2.65c
Pitts., No. 20 light	3.15c to 3.25c

TIN MILL BLACK NO. 28

Pittsburgh, base	2.50c to 2.55c
Gary base	2.65c to 2.75c
St. Louis, del.	2.87½c

HEAVY COLD ROLLED NO. 10

Pittsburgh base	2.20c to 2.30c
Gary, Ind. Harbor, base	2.35c to 2.45c
Chicago, del.	2.40c to 2.50c
Philadelphia, del.	2.56c to 2.66c
New York, del.	2.60c
St. Louis, del.	2.62½c

COLD ROLLED NO. 20

Pittsburgh, base	2.75c to 2.85c
Gary, Ind. Harbor, base	2.95c to 3.05c
Chicago, del.	3.00c to 3.10c
Philadelphia, del.	3.16c
New York, del.	3.10c
St. Louis, del.	3.22½c

Tin and Terne Plate

Prices per 100-pound box, Pittsburgh

Tin plate, coke base	$4.75

Gary, Ind., base 10 cents higher

Long ternes, 24, unassorted, 2.90c to 3.00c

Wire Products

(Prices apply on straight carloads. Mixed and joint carloads take 10 cents higher price; pool carloads 25-cent advance; less carloads 40-cent advance.)

F.o.b. mills, 100 lb. keg

Standard wire nails	$1.95
Cement coated nails	1.95
Galvanized nails	3.95

(Per pound)

Polished staples	2.50c
Galvanized staples	2.75c
Barbed wire, gal.	2.60c
Annealed fence wire	2.35c
Galvanized wire	2.80c
Woven wire fencing, (9-11 ga.)	$55.00
(12½ ga. and lighter)	$60.00

(To Manufacturing Trade)

Plain wire, 6-9 gage	2.20c
Spring wire	3.20c

Joliet, DeKalb, Waukegan, Ill., Anderson, Ind. Chicago, $1 over Pitts-Cleve.; Duluth and Worcester, Mass., $2 higher; Fairfield, Ala., $3 higher.

Steel Plates

Pittsburgh, base	1.50c to 1.60c
Philadelphia, base	1.69½c
New York, delivered	1.80c
Boston, delivered	1.92c to 2.02c
Chicago, base	1.70c
Cleveland, del.	1.80½c
Lackawanna, N. Y., base	1.60c to 1.70c
Birmingham, Ala., base	1.75c
Coatesville, Pa., base	1.60c
Pacific Coast, c.i.f.	1.80c to 1.85c
St. Louis, del.	1.97½c

Structural Shapes

Pittsburgh, base	1.50c to 1.60c
Philadelphia, del.	1.65c
New York, del.	1.77c to 1.87c
Boston, del.	1.90½c to 2.00½c
Chicago, base	1.70c
Cleveland, del.	1.80½c
Lackawanna, N. Y., base	1.60c to 1.70c
Birmingham, Ala., base	1.75c
Pacific Coast, c.i.f.	2.05c
Do., wide flange	2.15c

Bars

SOFT STEEL

Pittsburgh, base	1.50c to 1.60c
Chicago, base	1.70c
Birmingham, Ala., base	1.70c to 1.75c
Lackawanna, N. Y., base	1.60c to 1.70c
Pacific Coast, c.i.f.	2.05c
Cleveland, base, local del.	1.55c
Cleveland, base, out. del.	1.55c
Philadelphia, del.	1.81c
New York, del.	1.85c to 1.95c
Boston, del.	1.97c to 2.02c
Pittsburgh, cold finish	1.65c to 1.75c
Pittsburgh, forg. qual.	1.75c to 1.85c

RAIL STEEL

Chicago Heights	1.50c to 1.60c
Eastern mills	1.30c
Pittsburgh	1.30c to 1.35c

IRON

Chicago, base	1.70c
New York, delivered	1.85c to 1.95c
Philadelphia, delivered	1.86c to 1.96c
Pittsburgh, refined	2.70c to 4.20c

REINFORCING

Pitts., billet cut lengths	1.75c
Stock lengths, mill	1.60c
Chi., billet	1.75c to 2.00c
Chi., rail steel	1.55c to 1.80c
Chi., rail steel, bridges and culvert	1.40c to 1.50c
Philadelphia, cut lengths	2.06c
Cleveland, cut lengths	1.75c

Cold Finished Bars, Shafting

Base Pittsburgh, Chicago, Buffalo and Cleveland	2.00c
Shafting, turned and ground, Pittsburgh, Cumberland, Md.	2.35c to 2.80c

Corrosion, Heat Resist. Alloys

Base, Pittsburgh

18 per cent chrome, 8 per cent nickel Sheets, 35c; plates, 31c; bars, 28c.

	A	B	C	D
Bars	19c	20.5c	23c	28c
Plates	21c	22.5c	25c	30c
Sheets	26c	27.5c	30c	35c
Hot Strip	19c	20.5c	23c	28c
Cold strip	25c	26.5c	29c	34c

Carbon 0.12 and under; no nickel. A has chrome 15% and under. B over 15/18% inc., C over 18/23% inc., D over 23/30%.

Wrought Washers

Carloads, Pitts. dist.	$6.50 to 6.75 off
Carloads, Chicago dist.	7.00 to 7.50 off

Alloy Steel

Hot Rolled—F.o.b. Mills

Alloy Quality Bars, 2.65c, mill

S.A.E.	Alloy Diff.	
2000	0.25	4600 .20 to .30 Mo. 1.25-1.75 Ni. 1.05
2100	0.55	5100 .80 - 1.10 Cr. 0.45
2300	1.50	51.00 Cr. spring 0.20
2500	2.25	6100 bars 1.20
3100	0.55	6100 Spring 0.95
3200	1.35	Cr., Ni., Van. 1.50
3300	3.80	Carbon Van. 0.95
3400	3.20	9250 (flats) 0.25
4100 .15 to .25 Mo.	0.50	9250 (rds.,sq.) 0.50

Strip, Hoops, Bands

Hot strip, to 6-in., Pitts.	1.50c to 1.55c
Do, 6 1/16 to 24-in., Pitts.	1.40c to 1.45c
Hot strip to 6 in. Chi.	1.65c to 1.70c
Do, 6 1/16 to 24 in.	1.55c to 1.60c
Cooperage hoop, Pitts.	1.60c to 1.70c
Do., Chicago	1.70c to 1.80c
Cold-roll. strip, Pitts., Cleve.	1.90c to 2.00c
Worcester, 3 tons, over	2.15c

Rails, Track Material

Standard rails, mill	$43.00
Relay rails, Pitts., 20 to 45 lbs.	$21.00 to 23.00
50 to 75	18.00 to 20.00
80 to 100	24.00 to 27.00
Light rails, 25-45, mills	$34.00
Light rails, Chicago	$36.00
Angle bars, mills	2.75c
Spikes, railroad, mills	2.60c
Spikes, railroad, 7/16-in. and smaller, Pitts.	2.60c
Spikes, boat, barge, Pitts.	2.90c
Track bolts, Chicago	3.50c
Do, standard, jobbers	73 off list
Track bolts, Chicago	3.50c
Tie plate, mills	$37.00

Bolts and Nuts

Pittsburgh, Cleveland, Birmingham, Chi. Discounts to legitimate jobbing or large consuming trade for full-case lots apply to May 10, 1930, lists.

CARRIAGE BOLTS

All sizes, cut thread.....73, 10 and 10 off
Rolled thread ⅝ x 6 and smaller take 10 per cent lower list.
Eagle list .....73, 10 and 10 off

MACHINE BOLTS

All sizes, cut thread, lag screws, plow bolts, Nos. 1-2-3-7 heads, tap bolts, blank bolts, stud bolts without nuts .....73, 10 and 10 off
Tire bolts .....60, 10 and 10 off
Stove bolts, 80-25-10 off in pkgs.; 80 25-10-2½ off in bulk.
Rolled thread machine bolts, ⅜ x 6 and smaller take 10 per cent lower list.

NUTS

Semifinished .....73, 10 and 10 off

HEXAGON CAP SCREWS

Milled .....80-10-10-5 off
Upset 1 in. diam. and smaller....85-10 off

SQUARE HEAD SET SCREWS

Milled .....80-5 off
Upset, 1 in. and smaller.....80-10-5 off
Upset, larger than 1 in.....80-5 off

Cut Nails, Chain, Piling

Cut nails, c.l. Pittsburgh.....2.50c
Do. less carloads, 5 kegs or over..2.75c; less than 5 kegs, 2.90c.
Chain, BB, BBB, 9/16-1½ in....33 1/3 off
Sheet piling, Pitts. 1.90c

Rivets

Struc., c.l., Pitts.-Cleve.	2.25c
Struc., c.l., Chicago	2.35c
7/16-in. smaller, Pitts.	70, 10 and 5 off
Chicago, Cleve.	70, 10 and 5 off

Bars

Recent Gains Are Held by Mills —Automotive Buying Uncertain And Other Users Buy Carefully

BAR PRICES, PAGE 49

Chicago—Bar mills are holding their position. Western automotive partsmakers, following two months of brisk activity in forgings, transmissions, axles, universal joint, clutch and frame products, note still further gains in February bookings. Ford business is being awaited, however, and specifications soon will taper without it. Roadmaking machinery specifications are fair, while orders for snow plow equipment have fallen off. Bar inquiries are light, but short-term sales are maintained at a base of 1.70c, mills. One producer, who has completed three weeks of unusually active specifications, notes that the week just closed was the best this year. This week's preliminary schedules give promise of a continuation. Railroad shop specifications have failed to acquire momentum.

New York—Steel bars are moving sluggishly at 1.50c, Pittsburgh, in carlots.

Philadelphia—Steel bars are dull and unchanged at 1.50c, Pittsburgh, for carload lots.

Pittsburgh — Steel bar specifications retain the slight recent improvement but little additional betterment is noted. Automotive requirements are spotty and the increase over the volume of a month ago is moderate. The market continues 1.50c to 1.60c, with the lower price limited to large buyers.

Youngstown, O.—Common steel bar demand continues rather restricted but with a tendency to broaden. Individual shipments are small but appear more numerous. Agricultural implement makers, usually important users of common steel and rail steel bars, appear only moderately busy. Alloy steel bar demand is not recovering as fast as expected since auto partsmakers still buy cautiously. Quotations continue unchanged.

Cleveland — Merchant steel bar sales were better last week. Ordering was largely from customers for production quantities, little being of transient character. In the open market, with the exception of the preferred trade, 1.55c, Cleveland base, is done for local and outside delivery.

Through added production facilities, Italy in ten months of 1931 increased its output of aluminum to 9118 metric tons from 6878 tons in the same period of 1930.

Cold-Finished Activity Hinges on Auto Upturn

Cold Finished Prices, Page 49

Pittsburgh—The slight improvement in cold-finished bar shipments and incoming business during January was below expectations and the outlook is affected adversely by quietness in automotive requirements. Little change is noted in demand from other consumers. The market is steady at 2.00c, Pittsburgh.

Cleveland—Some slight upturn in specifying by an automotive interest in this district for a period of 60 days in advance has proved some steadying effect on an otherwise dragging market. Cleveland base of 2.00c is being held.

Tin Plate Demand Is Expected To Increase

Tin Plate Prices, Page 49

Pittsburgh — Tin plate specifications and operations are fairly steady, with output holding around 40 per cent. Better specifications are looked for in February although the outlook for the year is dimmed to a certain extent by the unfavorable credit situation among small canners which is expected to result in a decrease in 1932 packs. Full effects of recent cold weather on the Pacific coast fruit crop are not yet determined. Some competition is being experienced on the western coast with European tin plate as a result of the low freight rate on water shipment to this country. Tin plate is holding at $4.75, Pittsburgh, per base box.

Plates

Light Buying Disappoints Mills —Tank and Pipemakers Fail To Take Expected Tonnages

PLATE PRICES, PAGE 49

Chicago—Plate producers are disappointed at the lack of consistent support from oil tank builders. Moderate shipments of skelp for pipe line work are moving to the Milwaukee fabricator but no regular schedule has been arranged. Plate mills are booking some short-term sales contracts at 1.70c, but the market does not offer business that ordinarily would test quotations.

Boston — Demand for plates is small and for scattered lots. Prices are unchanged, although 1.90½c, Boston, is shaded on some business. Tank work is light. Pittsburgh-Des Moines Steel Co. booked a tank at Laurel Heights hospital, Shelton, Conn. Pumping units for the Chestnut Hill station went to Warren Steam Pump Co. at $64,199.

Philadelphia—Plates are moving generally at 1.60c, Coatesville, Pa., for carlots.

Pittsburgh—Plate demand is quiet and unchanged with little new business in early prospect. The market is 1.50c to 1.60c but is receiving test of only small lots. Prospective work in river equipment is expanding although only a few awards are scheduled for early decision.

Cleveland — Fabricators continue their conservative policies of not carrying stocks of plates against possible future needs of their customers or against pending projects, which are still extremely slow in closing. From other consuming lines dullness persists, so that plate mill backlogs still are low. A plate fabricator is reported to have closed on about 100 tons for tanks for a Barberton, O., private interest, the largest order last week.

New York—A few hundred tons of plates will be required for the reconditioning of six freighters for the American Diamond Lines, contract for which has been awarded to the Federal Shipbuilding Co. Miscellaneous plate demand is quiet, price being 1.60c, Coatesville, Pa., in carlots.

Contracts Placed

325 tons, gas holders, Brooklyn, N. Y., to Downingtown Iron Works Inc., Downingtown, Pa.

270 tons, coal breaker, St. Nicholas, Pa., to Connery & Co., Philadelphia. Noted last week as unknown supplier.

150 tons, tank and tower, army field, Alameda, Calif., to Huber Co., Los Angeles.

100 tons, tank, Passaic Valley Water Commission, Paterson, N. J., to Pitts-

burgh-Des Moines Steel Co., Pittsburgh.

Contracts Pending

1200 tons, plates and shapes, gas holder, navy, Sunnyvale, Calif., Stacey Mfg. Co., Cincinnati, low, $114,487. Water tank, same station, McClintic-Marshall Corp., Bethlehem, Pa., low $9970.

510 tons, approximately 85 helium storage tanks, bureau of yards and docks, navy department, Washington, for Sunnyvale naval air station, Mountain View, Calif.; bids Feb. 9 on delivered and f.o.b. basis; tanks are 80 feet long, two feet outside diameter, designed for high working pressures, with 3/8 to 5/8-inch wall.

200 tons, reconditioning six freighters, American Diamond Lines; Federal Shipbuilding Co., Kearny, N. J., contractor.

Spring Demand for Wire Gives Larger Bookings

Wire Prices, Page 49

Chicago—Western wire mills are getting into spring business. Jobber orders for merchant products have been increasing since the middle of January, while manufacturers' wire orders are slower. January shipments of all wire products will be 10 to 15 per cent over December. Little discussion is heard concerning the new price schedule. Wire nails are $1.95 in carload lots, while manufacturers' wire is 2.25c, Chicago or western mills.

Worcester, Mass.—Wire continues to show little change. Production is close to the rate of the final months of 1931. Prices are 2.30c, base, Worcester, for plain bright wire.

Pittsburgh—Fairly active movement of wire products from jobbers' stocks is expected to benefit mills soon. Shipments have been quiet recently although fair activity early in the month brought the January total to about the December volume. Recent specifications, however, have been quiet. Activity in manufacturers' wire is dull and the market is untested. Plain wire is quoted 2.20c with wire rods $37. Wire nails continue $1.95 in carload lots.

Cleveland—Wire product specifications have not improved. Prices hold at 2.20c, mill, on plain wire and a minimum of $1.95 a keg on carload lots of standard wire nails.

In the first nine months of 1931, Italy exported 2143 metric tons of aluminum, more than three times the 708 tons exported in the corresponding period of 1930. Most exports were ingots and scrap, manufactured articles being little increased.

Railroads

Expect Lackawanna Inquiry of 16,000 Tons—Nickel Plate Rail Inquiry Is Awaited

TRACK MATERIAL PRICES, PAGE 49

New York—Delaware, Lackawanna & Western railroad closes bids Feb. 9 to cover 1932 requirements of rails, tie plates, angle bars, spikes and other fastenings. Recent release of 4000 tons of rails by this road was against 1931 contracts. No specified tonnage is fixed for the opening of Feb. 9, the railroad to cover on various needs and specify as required. It is estimated that this road's rail requirements this year will not be over 16,000 tons. Maine Central contemplates the purchase of 1000 tons of rails and 45,000 rail anchors. Demand for rolling stock is virtually nil.

Pittsburgh—Interest has been centered largely on the rail wage meeting in view of the lack of buying on the part of most roads. New inquiry is quiet although considerable hope is entertained for improved demand as a result of the wage parley. Light rails are dull and demand for rerolling rails is almost entirely lacking. Prices are slightly easier.

Cleveland—Inquiry for rail fastenings for the recently divided rail order from the Erie have not yet appeared and may be two weeks more in developing. Little haste in rolling is demanded of the steel mills sharing in the 33,200-ton rail order, as initial deliveries are not wanted until March.

Inquiry may be formally expected next week from the Nickel Plate for its 1932 rail requirements, which are not expected to be more than 18,000 to 20,000 tons against orders for 27,400 tons allocated among four mills in January, 1931.

Chicago—Outcome of the railroad wage negotiations has been awaited on all sides, and activity in the railroad supply market has been virtually suspended during the negotiations of the past week. It is understood a number of rail inquiries will develop if the wage conference finally terminates successfully. Missouri-Kansas-Texas railroad has ordered 2800 tons of 90-pound rails. Western Fruit Express has bought 100 underframes from Pressed Steel Car Co.

Car Orders Placed

Western Fruit Express, 100 underframes, to Pressed Steel Car Co., Pittsburgh. Inquiry was originally for 300 underframes.

Pond Creek Pocahontas Co., 100 mine cars to Enterprise Wheel Co., Bristol, Tenn.

Rail Orders Placed

Missouri-Kansas-Texas railroad, 2800 tons 90-pound rails, evenly divided between Bethlehem Steel Co., Bethlehem, Pa., and Tennessee Coal, Iron & Railroad Co., Birmingham, Ala.

Rail Orders Pending

Delaware, Lackawanna & Western, unstated amount of rails and accessories for 1932; bids Feb. 9.

Maine Central, 1000 tons rails, contemplated; also 45,000 rail anchors.

Nickel Plate railroad, approximately 18,000 tons; inquiry expected out in about a week.

Bolts, Nuts, Rivets Quiet With Occasional Shading

Bolts, Nuts, Rivets Prices, Page 49

Pittsburgh—January proved quieter than December in specifications for bolts, nuts and rivets. Local producers share but slightly in automotive requirements and demands of railroads, structural shops and jobbers lack improvement. Some shading of the 73, 10 and 10 discount on bolts and nuts still is noted, with large rivets relatively firmer at 2.25c, Pittsburgh. Operations are about 25 per cent.

Philadelphia—Bolts and nuts are quoted usually at 73, 10 and 10 off, with buying spotty. Rivets are steady and unchanged.

Washington — Bids close Feb. 3 with the general supply committee on a large volume of 1933 fiscal year requirements for the District of Columbia and nearby points, including bolts, nuts, rivets, screws and washers, schedule 43; pipe fittings, schedule 45 and steel wire rope and miscellaneous wire, schedule 22.

Chicago—For the second successive week, gains are noted in shipping orders for bolts, nuts and rivets. Jobbers in several sections have been giving concessions on bolts and nuts, and the quotation is nominal at 73, 10 and 10 off. Rivet prices are steady. Farm equipment orders continue favorable.

The October total of 18,709 pumps sold was the lowest for any month of 1931, by department of commerce tables.

Structural Shapes

Three Western Postoffices Require 13,000 Tons—Fabricators' Backlogs Declining —Dullest Market in Several Years at New York—1.70c Firm at Chicago

STRUCTURAL SHAPE PRICES, PAGE 49

New York—Structural inquiry is dull, the lowest in several years. Delayed public construction work clouds the outlook. Temporarily held up is 2300 tons for the department of hospitals building. While thousands of tons are held in abeyance, the general feeling is that New York city work in many instances will not be delayed long. New Jersey will proceed with the route 25 viaduct deckwork which will take about 7500 tons of steel, although not regular structural sections. Awards are light and are generally under 500 tons each. Efforts have started toward a 25 per cent wage reduction in the building trades effective May 1 while structural steel workers at Syracuse, N. Y., and other points upstate have taken a 10 per cent reduction.

Boston—Boston Bridge Works Inc. is low on the state bridge at Westfield, about 700 tons, bidding $83,734. The Philadelphia contractor is reported to have closed on about 1500 tons for the public works building. New inquiry is light, although a fair number of small projects, taking less than 100 tons each, are active. Bids are about to come out for post office work at Brockton, Mass.

Philadelphia — Activity is light with shapes moving usually at 1.60c, nearest mill, in carlots. Inquiry includes 300 tons in a library at Girard college, Philadelphia.

Pittsburgh—Structural awards are quiet and new inquiry generally involves only small lots. Operations of smaller fabricators are at a low ebb and backlogs of all interests are declining. Plain shapes are quoted 1.50c to 1.60c, Pittsburgh.

Chicago—Much of current structural activity consists in reviving old inquiries. Bids have been received on 4100 tons for the Manheim road bridge, Chicago, but new figures again may be asked. Three post office projects, St. Paul, Minneapolis and St. Louis, will put 13,000 tons in the active stage shortly. Wide flange beams are more steady at 1.70c, Chicago, than other plain material. Mill operations are variable and no backlogs save scattered industrial projects are available to producers.

Cleveland—An Akron, O., fabricator closed on two local jobs last week totaling 525 tons, one being for a state highway bridge of the letting dated Jan. 22. Austin Co., Cleveland, has bought 460 tons of shapes for a paint plant, Philadelphia, for E. I. DuPont de Nemours Co., and 440 tons have been purchased for the Youngstown, O., postoffice. Local fabricating interests are awaiting award on the Niles, O., bridge, going in Feb. 2. Plain shapes continue 1.50c to 1.60c, Pittsburgh, and prices are a shade stronger.

St. Louis—Structural fabricators report a dearth of new business and further shrinkage in unfinished orders. Three of the leading plants have closed down, and the others are operating on skeleton forces. Outlook for spring, however, is promising, more so than at the same time in 1931.

Contracts Placed

2850 tons, sheet piling, Pea Patch dyke, Delaware, to Bethlehem Steel Co., Bethlehem, Pa., through Triest & Earle, contractors.

1000 tons, postoffice, Topeka, Kans., to McClintic-Marshall Corp., Bethlehem, Pa., through James I. Barnes, Logansport, Ind.

550 tons, sheet steel piling, United States army engineer, Memphis, Tenn., to Jones & Laughlin Steel Corp., Pittsburgh.

460 tons, paint plant, Philadelphia, for E. I. duPont de Nemours Co., Wilmington, Del., to McClintic-Marshall Corp., Bethlehem, Pa., through Austin Co., Cleveland, contractor.

Awards Compared

	Tons
Awards, week ended Jan. 30	**10,536**
Awards, week ended Jan. 23	**16,163**
Awards, week ended Jan. 16	**19,782**
Awards, this week in 1931	**20,348**
Av. weekly awards, 1931....	**34,236**
Av. weekly awards, 1932.....	**15,184**
Av. weekly awards, Jan.	**16,346**
Total awards to date, 1931	**135,089**
Total awards to date, 1932..	**75,921**

440 tons, postoffice, Youngstown, O., to unstated through A. W. Kutsche Co., Detroit, contractor.

375 tons, bridge, Washtucna, Wash., for Spokane, Portland & Seattle railway, to Poole & McGonigle, Portland, Oreg.

365 tons, power house and other buildings, Sing Sing prison, Ossining, N. Y., to Lackawanna Steel Construction Co., Buffalo; L. Levine, New York, contractor.

360 tons, building, 19 East Sixty-fourth street, New York, to American Bridge Co., Pittsburgh. Karl Koch Co., erecting through George H. Fuller Co.

360 tons, two high pressure holders, Brooklyn, N. Y., to Downingtown Iron Works, Downingtown, Pa., through United Engineers & Constructors Inc.

275 tons, bridge, Lake county, O., for Ohio highway department, to Burger Iron Co., Akron, O., through Purdy Construction Co., Mansfield, O.

250 tons, service station, Cleveland, for Goodyear Tire & Rubber Co., Akron, O., to Burger Iron Co., Akron, through Hunkin-Conkey Co., Cleveland, contractors.

250 tons, postoffice, Butte, Mont., to McClintic-Marshall Corp., Bethlehem, Pa.; A. M. Lindberg, St. Louis contractor

208 tons, two fuel oil barges ,Fern Bank, O., for United States engineers, Cincinnati, to McClintic-Marshall Corp., Bethlehem, Pa.

205 tons, bridge, Stelton, N. J., for Pennsylvania railroad, to McClintic-Marshall Corp., Bethlehem, Pa.

200 tons, bridge, Pennsylvania railroad, near Trenton, N. J., to McClintic-Marshall Corp., Bethlehem, Pa.

200 tons, bridge, Grand Central parkway, New York, to Lackawanna Steel Construction Co., Buffalo, through Tully & Denapoli.

200 tons, three fire stations, New York, to Reiche & Penner, New York, through Paul Sterling, contractor.

190 tons, nurses' home, Metropolitan and Fordham hospitals, New York, to Lieder Iron Works, New York, through Switzky & Co.

150 tons, soldiers and sailors orphans' home, Xenia, O., to Brown Steel Co., Columbus, O., through Gabreath & Leonard, Columbus, contractors.

125 tons, miscellaneous forms, Ward's Island, N. Y., to McClintic-Marshall Corp., Bethlehem, Pa., through Turner Construction Co.

125 tons, practice school, New Platz, N. Y., to unstated.

125 tons, billet storage building, South Chicago, Ill., for Wisconsin Steel Co., Chicago, to Wisconsin Bridge & Iron Co., North Milwaukee, Wis.

122 tons, pier foundation, Mt. Vernon, N. Y., to McClintic-Marshall Corp., Bethlehem, Pa.

106 tons, buildings, state hospital, Tewksbury, Mass., to New England Structural Steel Co., Boston; Allan A. Gillis Construction Co., Newton Center, Mass., contractor.

100 tons, Ohio highway projects 33, 53 and 62, to Mt. Vernon Bridge Co., Mt. Vernon, O., through G. W. Timmons, Columbus, O., contractor. Thirty-two tons of shapes, project 604, to Fort Pitt Bridge Works Co., Pittsburgh, through same contractor.

100 tons, shapes and bars, school, Darien, Conn., to McClintic-Marshall Corp., Bethlehem, Pa., and Kalman Steel Corp., Bethlehem, Pa.; Charles Smith & Sons, Derby, Conn., contractors.

100 tons, addition, Mutual Life building, Hartford, Conn., to Berlin Construction Co. Inc., Berlin, Conn.

105 tons, two furnaces, Houston, Tex., for Alcorn Combustion Co., to Belmont Iron Works, Philadelphia.

Contracts Pending

7500 tons, deckwork, route 25 viaduct, Newark, N. J., Jersey City, N. J., and Kearny, N. J., state highway commission; McClintic-Marshall Corp., Bethlehem, Pa., low.

5000 tons, postoffice and federal building, St. Paul.

4100 tons, Manheim road bridge, Chicago; McClintic-Marshall Corp., Bethlehem, Pa., low at $286,328.

4000 tons, postoffice, Minneapolis; standard Construction Co., Minneapolis, general contractor.

4000 tons, postoffice and federal building, St. Louis.

3000 tons, east approaches to municipal bridge, St. Louis; plans to be out soon.

2000 tons, federal building, Portland, Oreg.; Murch Bros., St. Louis, contractors.

1500 tons, Rufus King high school, Milwaukee; bids closed Jan. 28.

1500 tons, addition to Harlem hospital, New York.

1500 tons, postoffice, Sacramento, Calif.; bids March 2.

978 tons, masonry dam with eight gates, Illinois river, near Marseilles, Ill., army engineer, Chicago. Work also requires 43 tons forgings, 42 tons steel castings, 32 tons iron castings, 22 tons steel piling, 11 tons wire fabric.

800 tons, addition, Library of Congress; Jacobson Bros. Co., Chicago, low, $1,123,000.

700 tons, state bridge, Westfield, Mass., Boston Bridge Works Inc., Boston, low.

700 tons, catholic hospital, Darby, Pa.; new bids Feb. 1.

650 tons, apartment building, Baltimore.

600 tons, bridge, H street, Sacramento, Calif.; bids called for in February.

600 tons, postoffice, Long Beach, Calif., general contract awarded. Steel will be placed soon.

500 tons, wharf for El Dorado Oil Co., foot of Adeline street, Oakland, Calif.; plans being prepared.

500 tons, Ford Motor Co. service building, Alexandria, Va.

500 tons, hall, Baltimore, for Tall Cedars of Lebanon.

500 tons, auditorium and gymnasium, Institute of Holy Angels, Ft. Lee, Staten Island, N. Y.

500 tons, shop buildings at Pearl Harbor, T. H.; bids Feb. 23 by bureau of yards and docks, Washington.

425 tons, cut-off wall, May's Landing, N. J.; to be readvertised Feb. 8. State township project.

400 tons, two service stations for Goodyear Tire & Rubber Co., Akron, O.

350 tons, highway bridge, Roselle Park, N. J.

300 tons, building, Detroit, for Salvation Army.

300 tons, hospital, Norristown, Pa.; bids Feb. 10.

300 tons, library, Girard college, Philadelphia.

250 tons, bridge work, Brooklyn, N. Y., for New York Rapid Transit Co.

250 tons, highway bridge, Mt. Zion, Md.

250 tons, building, Vancouver, Wash., for bureau of roads; A. Guthrie & Co., Portland, Oreg., low bidder.

200 tons, state highway bridge, Paramus, N. J.

200 tons, transit shed, Long Beach, Calif.; bids to be called for shortly.

150 tons, women's dormitory, Elizabethtown, Pa.; bids Feb. 3.

108 tons, bridge approaches, industrial canal, New Orleans; bids to be asked soon. P. H. Quinlan, city engineer.

100 tons, building for state, Stockton, Calif.; bids to be called for in March.

100 tons, warehouse, Somerville, Mass.

Concrete Bars

Pasadena, Calif., Dam Takes 2500 Tons—Federal Work Declining in New York Area—Price Situation Unchanged—6000 Tons Pends at Chicago In Four Jobs

REINFORCING BAR PRICES, PAGE 49

New York—Concrete bar inquiry is light and the outlook uncertain because of slowing up of public work. Some projects are being held up, while contractor-buyers are slow to close on others until municipal programs are clarified. On small lots 1.95c, delivered continues to cover business, though on larger tonnages this is shaded up to $2 a ton. Considerable tonnage is held in abeyance by New Jersey highway retrenchment, although the route 25 viaduct deck job will go forward. For the Grand Central Parkway, 200 tons have been placed.

Boston—State highway and bridge work make up the bulk of pending tonnage in reinforcing bars, prices on which are easy on attractive shipments. Several hundred tons are out for public highways. Fred T. Ley & Co. has been awarded the highway and viaduct contract between West Springfield and Westfield, Mass. Awards are light with 125 tons going for the Framingham-Natick route.

Philadelphia—Featuring the market last week was award of 425 tons for the Coatesville, Pa., veterans' hospital to Buffalo Steel Co., Tonawanda, N. Y.

Buffalo—Demand for reinforcing bars continued very slow throughout January. There is no major inquiry pending for early coverages.

Pittsburgh—Reinforcing bars are affected by the usual first-quarter quietness and small lots predominate in inquiry and awards. The market continues 1.60c for mill lengths.

Cleveland—Though not scheduled to be active for six months, plans are under way by municipal engineers for a $4,700,000 sewage plant to include digestor tanks and pump line on East Forty-ninth street between Canal road and Grand avenue, Cuyahoga Heights, O. The Washington exchange building for the Ohio Bell Telephone Co. at Cleveland will take a tonnage of reinforcing steel.

Chicago—Aside from scattered government projects west and south of here, reinforcing bar business has been of little consequence. About 6000 tons is pending, including 5000 tons for the Rock Island, Ill., locks and dam, a bridge and two telephone exchange buildings. The higher price cards announced Jan. 1 have been generally accepted. An Illinois road commission has been organized to draft a program for spending $500,000,000 of motorists' tax money in the next ten years for state road construction.

Awards Compared

	Tons
Awards, week ended Jan. 30	**3,701**
Awards, week ended Jan. 23	**5,562**
Awards, week ended Jan. 16	**6,002**
Awards, this week, 1931	**12,990**
Av. weekly awards, 1931	**6,808**
Av. weekly awards, 1932	**6,448**
Av. weekly awards, Jan.	**7,144**
Total awards to date, 1931	**36,653**
Total awards to date, 1932	**32,238**

Contracts Placed

425 tons, veterans' hospital, Coatesville, Pa., to Buffalo Steel Co., Tonawanda, N. Y.

300 tons, federal building, Portland, Oreg., to Truscon Steel Co., Youngstown, O.; Murch Bros., St. Louis, contractors.

300 tons, teachers' college, San Jose, Calif.; to Concrete Engineering Co., Omaha, Nebr.

250 tons, administration and receiving building, United States reformatory, bureau of federal prisons, Oklahoma City, Okla., to Concrete Engineering Co., Omaha, Nebr.; W. S. Bellows Construction Co., Oklahoma City, contractor. Capitol Steel & Iron Works, Oklahoma City, awarded 70 tons of structurals.

200 tons, highway work, Grand Central Parkway, Queens (New York), to Joseph T. Ryerson & Son Inc., Chicago; Tully & De Napoli, contractors.

150 tons, double hangar for Post field, Oklahoma, to Jones & Laughlin Steel Corp., Pittsburgh; Harman Engineering Co., Chicago, contractor.

165 tons, storage plant, Upland, Calif., for Lemon Growers association, to unnamed interest.

133 tons, state bridges, Bear and Robbs creek, Fayette county, Texas, to Concrete Engineering Co., Omaha, Nebr.; D. F. Jones Construction Co., Little Rock, Ark., contractor.

130 tons, postoffice, Stockton, Calif., to

(*Concluded on Page* 56)

Strip

January Volume Compared Well with December but Further Gain Is Lacking

STRIP PRICES, PAGE 49

Pittsburgh — Although shipments of strip last month compared favorably with the December volume incoming business was quieter and little improvement is in early prospect, because of the failure of automotive schedules to show a more substantial increase. Operations are spotty and the average is slightly lower at 20 to 25 per cent. Specifications involve only small lots and little change in demands of miscellaneous consumers is noted compared with the December rate. Prices are easy with hot strip quotable no higher than 1.55c and 1.45c. Some business in cold-rolled strip is going at 1.90c with smaller lots at 2.00c.

Philadelphia — Strip trading is quiet, hot-rolled being easy at 1.45c and 1.55c, Pittsburgh, and cold-rolled 1.90c to 2.05c, Pittsburgh.

Youngstown, O.—Buying of the narrower widths of strip continues in fairly satisfactory volume, but some subsidence in current specifications for wider widths is noted in some quarters as is the case with autobody sheets. While quotations have been irregular, they are no more so now than earlier in the month.

Cleveland — Steel strip demand continues dull. However, one mill selling hot-rolled largely to the automotive trade has been receiving orders in an increased volume over January of 1931. Orders are universally wanted rush. Hot-rolled orders are on the books at 1.45c and 1.55c, Pittsburgh, for the two widths but an attractive specification commands $1 under this level. Cold-rolled is generally 2.00c, Cleveland.

Operations at 28.5 Per Cent; To Hold This Week

Pittsburgh—Ingot production has eased slightly to 25 per cent during the past week, one independent producer having closed down five open-hearth furnaces previously in operation. Steelworks blast furnace operations are unchanged at 10 active of 54. Sheet output is up slightly at 25 to 30 per cent with tin plate holding at 40. Strip and pipe are lower at 20 to 25.

Buffalo—Operations are expected to drop back to about 13 per cent this week, a decline of 9 points from last week. Not much improvement is anticipated until mid-February when resumption of rail production at Lackawanna should be a major factor. There will be eight of 37 open hearths operating, according to this week's schedules.

Philadelphia — Ingot production was up one point last week to 18-19 per cent. Little early change is expected.

Bethlehem Steel Co. resumed last week at Steelton, Pa., with four open hearths which had been closed since the Christmas holidays. The rail mill was also started, having been down the same length of time.

Operations, week of Jan. 30	**28.5**
Operations, week of Jan. 23	**27**
Operations, week of Jan. 16	**26**
Operations, this week, 1931	**47**
High, 1931-32 (March 19)	**57**
Low, 1931-32 (Dec. 26)	**15-20**

Cleveland—Steel production last week was 38 per cent, up three points from the previous week. For this week the rate probably will be continued. Three open hearths are active at Otis Steel Co., six at Corrigan, McKinney Steel Co., and four at American Steel & Wire Co.

Chicago—Steelworks will have 27 to 28 per cent ingot capacity engaged this week. In the week just closed ingot production was slightly under 25 per cent. Illinois Steel Co. has five steelworks furnaces active and Inland Steel Co. has two in blast. Youngstown Sheet & Tube Co. and Wisconsin Steel Co. each have one blowing. Rail production is down entirely, but may be resumed this week on a moderate schedule.

Birmingham, Ala—Steel production last week was continued at 60 per cent, and this week the rate will be unchanged. Tennessee Coal, Iron & Railroad Co. has six open hearths on at Ensley, Ala., and four active at Fairfield, Ala. Gulf States Steel Co. continues with three of six operating.

Youngstown, O. — District ingot production average 36 per cent last week, up 2 points, and at the highest level for 1932. Steel output will show little change this week. Twenty-five of 68 open hearths are operating, unchanged from last week. Flat-rolled steel production, particularly in sheets, has been higher for several days. Trade sentiment is somewhat improved but definite predictions for the industry's outlook are lacking.

Warehouse Prices Lower At Some Centers

Warehouse Prices, Page 63

New York — While some jobbers note a slight well-spread increase in volume, improvement is not general. Demand is for small lots which has a tendency to steady prices, though sheets are easy and shading up to $2 a ton is reported on black.

Philadelphia — Jobbers have reduced steel plates, shapes and bars, iron and reinforcing bars, No. 10 blue annealed sheets, bands and hoops, by varying amounts. January bookings were under those for December.

Pittsburgh—Buying lacks improvement and January sales were slightly lower than in December. Prices are unchanged but irregular on some products.

Cleveland—Demand for steel from warehouse still is restricted to slow dimensions with orders small individually. Quoted prices are unchanged.

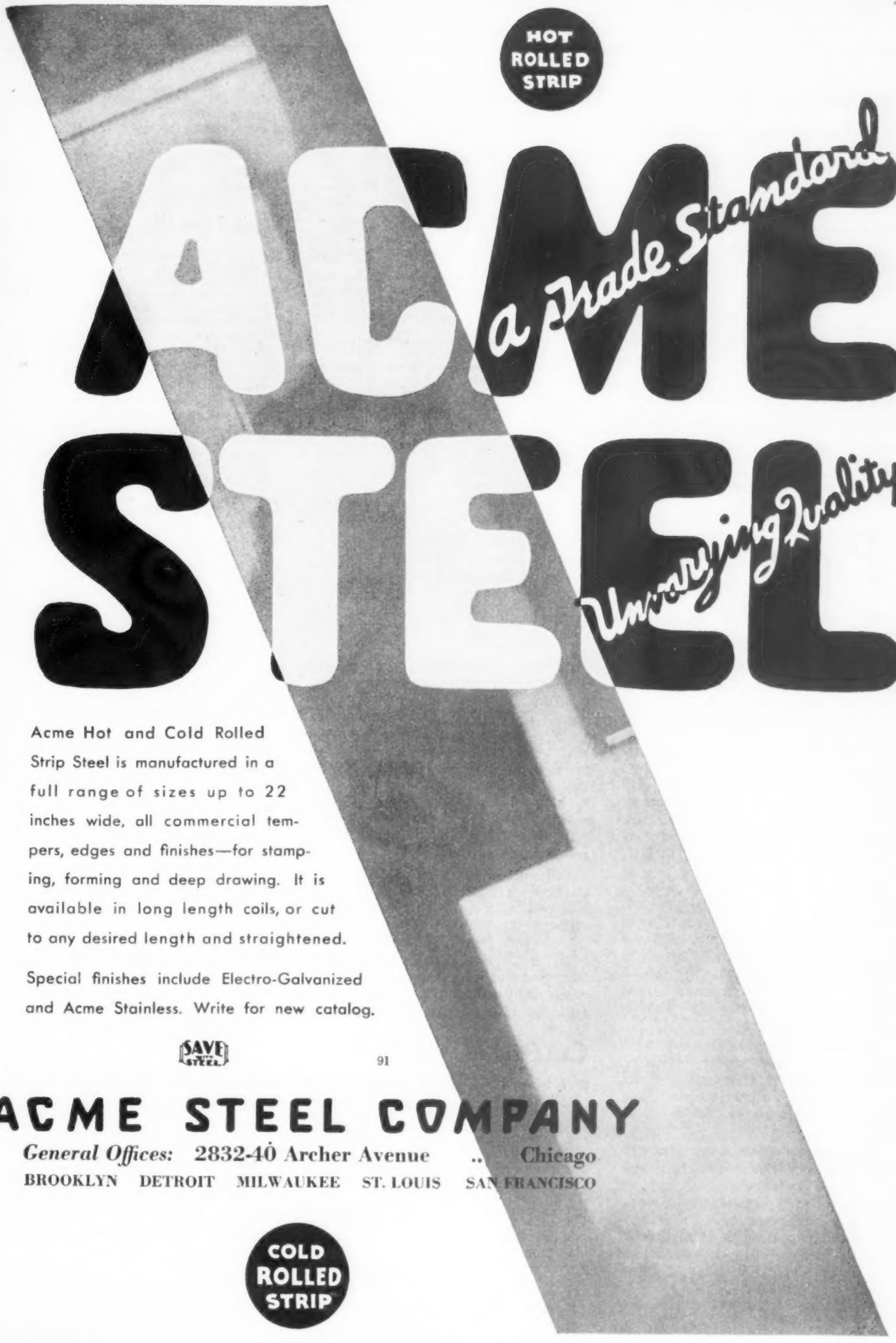
Detroit—The daily rate in steel sales from store during the last half of January increased rather encouragingly over the first half of the month. Trading, however, is still far from brisk.

Cincinnati—Tonnage this month will be heavier than in December, but with less than normal seasonal improvement. Prices are unchanged.

Chicago—Inquiries are more numerous for warehouse products, but buying is only a shade over the December rate. January shipments have picked up materially over December. Jobber prices of bolts and nuts show weakness in some market areas, but are fairly steady at Chicago.

St. Louis—Steel jobbers report business spotty and irregular, but with volume thus far in January considerably larger than December, and comparing favorably with January of 1931. Some slight betterment has developed in sales of wire and wire products.

Nassau Smelting & Refining Co., New York, has increased its capitalization from 10,000 to 60,000 shares of no par value.



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ACME STEEL COMPANY

General Offices: 2832-40 Archer Avenue .. Chicago

BROOKLYN DETROIT MILWAUKEE ST. LOUIS SAN FRANCISCO

COLD ROLLED STRIP

Concrete Bars Placed

(*Concluded from Page 53*)

Pacific Coast Steel Corp., San Francisco.

125 tons, veterans' hospital, Oteen, N. C., to Southern General Fireproofing Co., Atlanta, Ga.; Henry B. Ryan Co., Chicago, contractor.

125 tons, hospital, Indian service, Winnebago, Nebr., to Kalman Steel Corp., Bethlehem, Pa.; Charles B. Johnson & Sons Inc., Chicago, contractor.

125 tons, state highway, Natick-Framingham route, Massachusetts, to Northern Steel Co., Boston.

100 tons, public utility building, Long Beach, Calif., to Blue Diamond Co., Los Angeles.

100 tons, public utility building, Long Beach, Calif., to unnamed interest.

100 tons, courthouse, Martinez, Calif., to Soule Steel Co., San Francisco.

Unstated tonnage, consisting of 46 tons of reinforcing steel and 42,000 square feet, 6 x 4 x 4 wire mesh, concrete fuel oil tanks and outside distribution system, hangar area, Langley Field, Va., to Jones & Laughlin Steel Corp., Pittsburgh, through Harman Engineering Co. Inc., Chicago, contractor.

Contracts Pending

2500 tons, Pine Canyon dam, San Gabriel river project, Pasadena, Calif.; bids to be called for shortly.

400 tons, estimated, square, mainly 1 and 1¼-inch, 20, 30 and 35-foot lengths, Panama Canal, schedule 2723; bids Feb. 3.

350 tons, widening bridge over Arkansas river, Tulsa, Okla., for Oklahoma highway commission; bids Feb. 9.

325 tons, state highways, Massachusetts.

300 tons, bridges and viaduct approach, Westfield, Mass.; bids in.

150 tons, warehouse, First National store, Somerville, Mass.

104 tons, masonry dam with eight gates, Illinois river, near Marseilles, Ill., army engineer, Chicago.

100 tons, bridge over Sorrento canyon, San Diego, Calif.; bids opened.

Unstated tonnage, Washington telephone exchange building, Cleveland, for Ohio Bell Telephone Co.

Pipe

Consider Cast Price Advance—Texas-Chicago Line Deferred—New York Yard Stocks Low

PIPE PRICES, PAGE 63

New York—Newark, N. J., has bought approximately 700 tons cast. Bids are being taken on cast pipe for the state school at Wassaic, N. Y., a direct letting taking more than 500 tons. A New Jersey utility closed on several hundred tons. Indications are that New York city will not take more than one-fourth of the yard stocks originally planned, although yard stocks in several boroughs are low. New inquiry is fair, but generally in small lots.

American Cast Iron Pipe Co., Birmingham, Ala., is low on approximately 700 tons of wrought iron or steel pipe for Panama. Several hundred tons of steel and wrought are being purchased for the inland freight terminal and parcel post buildings, some of the pipe having been already placed.

Boston—Cast prices still sag with close to $25 and under, foundry, noted for recent tonnages. Fresh inquiry is light, but two Rhode Island cities have closed on about 1500 tons.

Washington—Lock-Joint Pipe Co. bidding on concrete alternate is low on a large water extension project material, which should contractors' bids specifying cast pipe be accepted, would take close to 5000 tons of 36 to 48-inch. Philippines close bids Feb. 23 on about 1000 tons of 4 and 8-inch.

Pittsburgh—Demand lacks improvement, with activity in all grades at low ebb. Definite inquiries for line pipe are few despite the number of projects under consideration. It is expected that several months will elapse before buying develops for a number of such lines. Northern Natural Gas Co. proposes to build a 30-inch line from Plattsmouth, Nebr., to Omaha, Nebr. Pipe mill operations are irregular and lower at 20 per cent.

Chicago—Extension of the Texas-Chicago natural gas line to Milwaukee will not proceed before late spring. The first unit to Rockford, Ill., 10,000 tons of 20-inch, will be built first. Minneapolis has ordered 2700 tons of miscellaneous sizes, all cast. Milwaukee has tabulated bids on 1700 tons of 12 and 16-inch.

Cast Pipe Placed

2700 tons, miscellaneous sizes for Minneapolis, to American Cast Iron Pipe Co., Birmingham, Ala.

1200 tons, up to 24-inch, Pawtucket, R. I., to Warren Foundry & Pipe Co., Phillipsburg, N. J.

472 tons, 18-inch class B and C, Burbank, Calif., to American Cast Iron Pipe Co., Birmingham, Ala.

250 tons, 8-inch, Public Service Electric & Gas Co., New Jersey, to United States Pipe & Foundry Co., East Burlington, N. J.

207 tons, 4 and 6-inch class B, Whittier, Calif., to C. G. Claussen & Co., San Francisco.

200 tons, 36-inch, sewer Westchester county, to Donaldson Iron Works, Emaus, Pa.; Intercounty Construction Co., contractor.

200 tons, 6 to 20-inch, Woonsocket, R. I., to Warren Foundry & Pipe Co., Phillipsburg, N. J.

143 tons, 6 and 8-inch class 150, Alhambra, Calif., to National Cast Iron Pipe Co., Birmingham, Ala.

Steel Pipe Placed

215 tons, up to 16-inch, heating, inland freight terminal, Port Authority, New York, to National Tube Co., Pittsburgh; Jarcho Bros. Inc., heating and plumbing contractor. Partial requirements, more to be bought.

110 tons, heating, women's reformatory, Bedford Hills, N. Y., and cell block, Dannemora, N. Y., to Republic Steel Corp., Youngstown, O., through Afgo Engineering Co.

Unstated tonnage, 43,000 feet, steel or wrought iron pipe, Panama, to Construction Supplies Co., New York, $4650.30; schedule 2712.

Unstated tonnage, 2060 feet, mostly 4-inch welded steel pipe, Camp Knox, Ky., to Greene Wolf Co., New York.

Cast Pipe Pending

3000 tons, 6 and 12-inch, reservoirs, St. Louis county, Mo.

2441 tons, 18 and 20-inch class B, Signal Hill, Calif.; bids opened.

1700 tons, Milwaukee; Donaldson Foundry Co., Emaus, Pa., low on 12, 16-inch and specials at $33.85, delivered; United States Pipe & Foundry Co., East Burlington, N. J., low on 1200 tons of 12-inch at $34.65; Glamorgan Pipe & Foundry Co., Lynchburg, Va., low on 500 tons of 16-inch at $34.

1500 tons, 6 to 12-inch, St. Paul.

1000 tons, 12 to 24-inch for Ft. Wayne, Ind.; bids Feb. 17.

700 tons, various sizes, Newark, N. J.; bids in; also 65 tons of fittings.

500 tons, various sizes, boys state school, Wassaic, N. Y.

365 tons, mostly 12-inch, metropolitan water district, Hartford, Conn.; bids in.

250 tons, 8-inch class 150, dirigible base, Sunnyvale, Calif.; bids Feb. 3.

100 tons, 12 and 16-inch, class A, sewer, White Plains, N. Y.

100 tons, small sizes, Attica prison, N. Y.

Unstated tonnage, 20,000 feet, small sizes, navy department, New York or San Francisco; bids Feb. 9.

Steel Pipe Pending

3000 tons, 60-inch, water department, New York; specifications not yet issued.

850 tons, 18 and 20-inch welded steel pipe, Signal Hill, Calif.; bids opened.

700 tons, approximate, up to and mostly 16-inch, extra strong wrought iron, Panama, American Cast Iron Pipe Co., Birmingham, Ala., low, total $70,262.80, three classes schedule 2718. Youngstown Sheet & Tube Co., Youngstown, O., low on 13,500 feet, 6-inch wrought iron or steel pipe, $7884.

175 tons, up to 8-inch, wrought iron, inland freight terminal, Port Authority, New York; Jarcho Bros. Inc., heating and plumbing contractors, partial requirements.

150 tons, up to 16-inch, steel pipe, heating, parcel post building, New York, partial requirements; Jarcho Bros. Inc., heating contractors.

100 tons, 3200 feet of 22-inch steel pipe, Lockwood-Canaday Irrigating Co., Malaga, Chelan county, Wash.; O. M. Bise, secretary. Bids Feb. 1.

Raw Material Prices

Delivered pig iron prices subject to 10 per cent freight surcharge, maximum 13.44c gross ton, from Jan. 4

Pig Iron

Per Gross Ton

FOUNDRY, NO. 2

Chicago furnace	$16.50
Pittsburgh, dist. fur.	16.50 to 17.00
Pittsburgh, delivered	17.13 to 18.13
Valley furnace	15.50 to 16.00
Cleveland fur., local del.	16.00
Philadelphia, delivered	15.26 to 15.76
Virginia furnace	17.50
Granite City, Ill., fur.	17.50
Buffalo, fur., local del.	16.00
Buff., all-rail, Boston	19.91 to 20.41
Buff., all-rail, Brooklyn	19.40 to 19.90
Buff., all-rail, Newark	17.78 to 18.28
Ala., Bir. fur., local del.	11.00 to 12.00
Ala., Nor. del., Bir. base	10.00
Alabama, del. Chicago	16.01
Alabama, del. St. L.	14.42
Alabama, del. Cincinnati	13.82
Ala., Phila., dock del.	15.00 to 15.25
Ala., Balt., dock del.	15.00
Alabama, New York dock	15.50
Ala., Boston dock del.	16.50 to 16.75
Tenn., Bir. base, local del.	13.00
Tennessee, del. Cinn.	13.82
Montreal, delivered	23.00 to 23.50
Toronto, delivered	22.10

FOUNDRY, NO. 2X

Buffalo, fur., local del.	16.50
Buff., all-rail, Brooklyn	19.90 to 20.40
Buffalo, all-rail Newark	18.28 to 18.78
Buff., all-rail, Boston	20.91 to 21.41
Virginia furnace	18.00
Eastern, del. Phila.	15.76 to 16.26

FOUNDRY, NO. 1X

Buffalo fur., local del.	17.50
Eastern, del. Phila.	16.26 to 16.76

MALLEABLE

Valley furnace	16.00 to 16.50
Cleveland fur., local del.	16.00
Pittsburgh dis. fur.	16.50 to 17.00
Pittsburgh, delivered	17.13 to 18.13
Chicago, furnace	16.50
Buffalo fur., local del.	15.50 to 16.00
Eastern Penna., delivered	17.76 to 19.91
Granite City, Ill., fur.	17.50
Montreal, delivered	24.00
Toronto, delivered	22.60

BASIC

Pittsburgh, district fur.	15.50 to 16.00
Pittsburgh, delivered	16.13 to 17.13
Eastern Penn., del.	16.00 to 16.50
Buffalo fur., local del.	15.50 to 16.00
Montreal, delivered	23.50
Valley, furnace	15.00

BESSEMER

Valley furnace	16.00 to 16.50
Pittsburgh, delivered	17.13 to 18.13
Pittsburgh, furnace	16.50 to 17.00

LOW PHOS.

Valley fur., standard	27.00
Philadelphia, standard	23.76 to 26.79
Copper-bear., E. Pa. fur.	21.50 to 23.00

GRAY FORGE

Valley furnace	15.50
Pittsburgh district fur.	16.00 to 16.50
Pittsburgh, delivered	16.63 to 17.63

CHARCOAL

Lake Superior, del. Chicago	23.04

SILVERY

Jackson County, O., fur. in per cents: 6—$19; 7—$19.50; 8—$19.00 to $21.00; 9—$20.50; 10—$21; 11—$22; 12—$23; 13—$25.

BESSEMER FERROSILICON

Jackson County, O., fur. in per cents: 10—$23; 11—$24; 12—$25; 13—$27; 14—$29; 15—$31; 16—$33.

Coke

Prices Per Net Ton

Beehive Ovens

Connellsville furnace	$2.25 to 2.35
Connellsville foundry	3.25 to 4.50
New River foundry	6.00
Wise county foundry	4.25 to 5.00
Wise county furnace	3.50 to 4.25

By-Product Foundry

Newark, N. J., del.	8.76 to 9.16
Chicago, ovens	7.50
New England, del.	10.50
St. Louis, del.	8.50
Birmingham, ovens	4.50
Indianapolis, del.	8.32
Ashland, Ky., ovens, Connell., basis	5.50
Portsmouth, O., ovens Connell., basis	5.50
Buffalo, ovens	8.00 to 8.50
Detroit, ovens	8.00
Philadelphia, del.	8.75

Iron Ore

LAKE SUPERIOR ORE

Gross ton, 51½%, Lower Lake Ports

Old range bessemer	$4.80
Mesabi bessemer	4.65
Old range nonbessemer	4.65
Mesabi nonbessemer	4.50
High phosphorus	4.40

EASTERN LOCAL ORES

Cents per unit delivered at Eastern Pennsylvania and New Jersey furnaces

Foundry and basic, 56-63%, contract	9.00
Copper-free low phos. 58-65%	nom.

FOREIGN ORE

Cents per units, alongside docks Atlantic ports

Foreign manganiferous ore, 45-55% iron, 6-10% man.	9.50 to 10.00
North African low phos.	8.00 to 9.00
Swedish basic, 65%	8.00
Swedish low phos.	9.00
Spanish, North African basic, 50 to 60%	7.00 to 8.50
Newfoundland fdy., 55%	8.00
Tungsten, spot and future short ton unit, duty paid	$11.00
Chrome ore, 48% net ton c.i.f.	$18.00 to 19.00

Manganese Ore

Prices, not including duty, are cents per unit; cargo lots.

Caucasian, 52-55% (nom.)	26 cents
South African, 52%	23 to 24 cents
South African, 49-51%	22 to 23 cents
South African, 44-47%	21.00 to 21.50
Indian, 48-50%	nom.
Brazilian, 46-48% (nom.)	nominal

Refractories

FIRE CLAY BRICK

Per 1000 f.o.b. Works

First Quality

Pennsylvania, Ohio, Illinois, Kentucky, Maryland, Georgia, Alabama	$38.00
Missouri	35.00

Second Quality

Pennsylvania, Ohio, Illinois, Kentucky, Missouri, Maryland	25.00 to 30.00
Georgia, Alabama	30.00

SILICA BRICK

Pennsylvania	38.00
Joliet, Ill., East Chicago, Ind.	47.00
Birmingham, Ala.	50.00

MAGNESITE BRICK

Per Net Ton

9 x 4½ x 2½	$61.50

CHROME BRICK

Per Net Ton

F.o.b. shipping point	$42.50

MAGNESITE

Dead burned grain, net ton, Chester, Pa., or Baltimore bases	38.00
Domes, Chewelah, Wash., base	20.90

Semifinished Steel

Prices Per Gross Ton

BILLETS AND BLOOMS

4 x 4-inch base

Pittsburgh, open-hearth	$27.00
Pittsburgh, bessemer	27.00
Youngstown	27.00
Cleveland	27.00
Philadelphia	32.75
Chicago	29.00
Forging, Chicago	35.00 to 36.00
Forging, Pittsburgh	34.00
Forging, Philadelphia	38.75 to 39.75

SHEET BARS

Pittsburgh	26.00 to 27.00
Youngstown	26.00
Cleveland	26.00
Chicago	28.00 to 29.00

SLABS

Pittsburgh	27.00
Youngstown	27.00
Cleveland	27.00

WIRE RODS

Pittsburgh, Cleveland	$37.00
Chicago	36.00 to 38.00

SKELP

All grades, Pittsburgh	1.50c

Ferroalloys

(In dollars, except Ferrochrome)

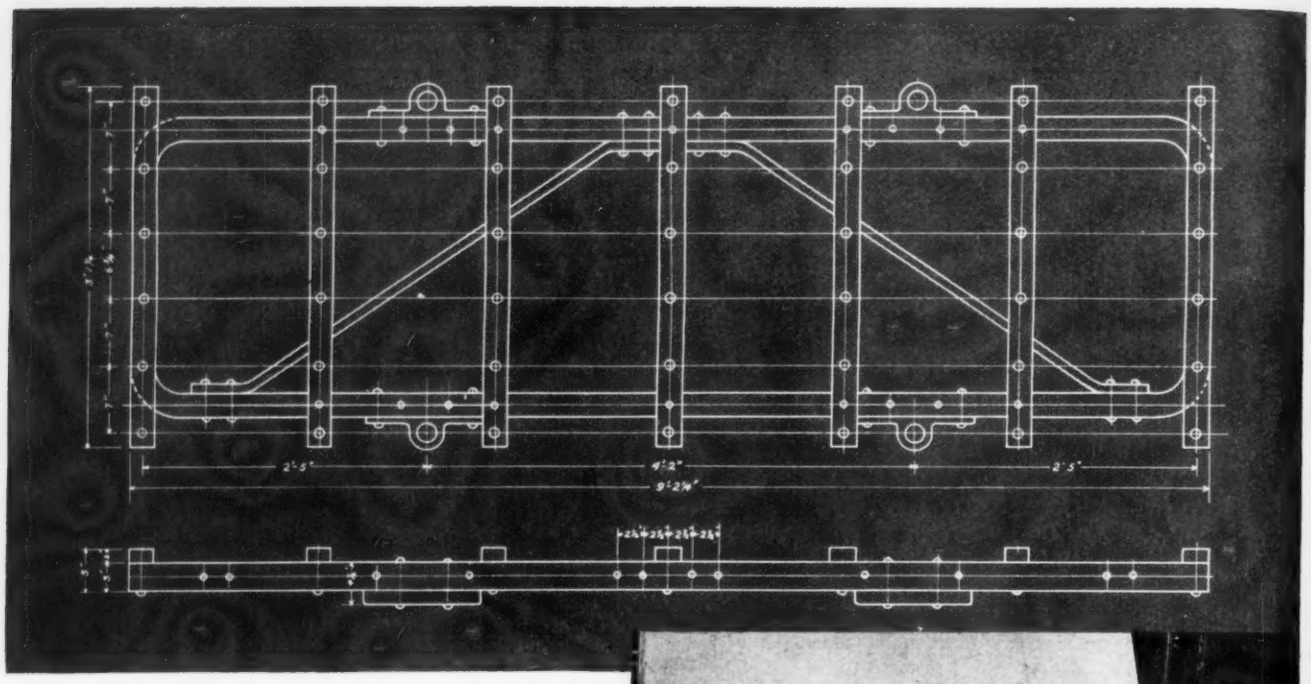
*Ferromanganese, 78-82%, tidewater, duty paid	$75.00
*Ferromanganese, del. Pittsburgh	79.85½
Spiegeleisen, 19-20%, domestic fur. spot†	27.00
Ferrosilicon, 50 per cent, freight all., c. l.	77.50
Do, less carload	85.00
Do, 75 per cent	126.00 to 136.00
Silicomang., 2½% carb.	105.00
2% carbon	110.00
1% carbon	115.00
(Spot prices, $5 a ton higher.)	
Ferrochrome, 60-70 chromium, 4-6 carbon, cts. lb. con. del.	10.00
Do, for spot delivery	10.50
Ferrotungsten, stand., lb. cont.	1.10 to 1.20
Ferrovanadium, 30-40 per cent, per lb. contained, on analysis	3.05 to 3.30
Ferrotitanium, c.l., prod. plant, frt. allow., net ton	137.50
Spot, 1 ton, frt., all., lb.	8.50
Do, under 1 ton	9.00
Ferrophosphorus, per ton, carload 17-19 per cent, Rockdale, Tenn., basis, (18 per cent)	91.00
Ferrophosphorus, electrolytic per ton carload, 23-25% f.o.b. Anniston, Ala., 24%	122.50
Ferromolybdenum, stand. 50-60 per cent. per lb.	0.95
Cal. Molybdate, lb. cont.	0.80
Molyte, lb. cont.	.80

†Carloads. Differentials apply to quant.
*To users of carloads to 1000 tons annually. Differentials to large users.

Fluorspar

85 and 5 per cent grade

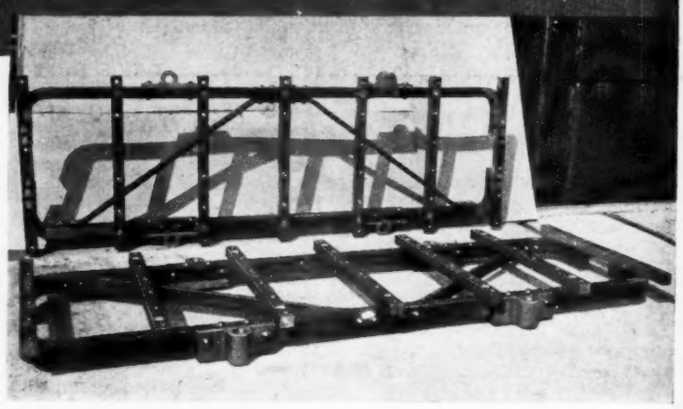
Washed gravel, domes., net ton, del. Pitts. equiv.	$20.31
Washed gravel, import duty paid tide. gross ton	18.50



No. 58

Pickling Equipment that passes the test of service

Ten of this type of Monel Metal pickling crates with 18 of other sizes were recently installed in the pickling department of a prominent Ohio sheet steel mill to improve the enameling qualities of steel sheets for the porcelain enameling trade. Designed in conference with the steel mill's engineering staff and fabricated from rolled Monel Metal bars at the Huntington, W. Va., Works of The International Nickel Company, Inc.



MONEL METAL PICKLING CRATES

give better Enameling Surfaces at lower cost

● Mills that produce large quantities of finished steel sheets for the enameling trade must keep a watchful eye on pickling costs. This means a steady flow of production through the pickling department, without interruptions occasioned by irregular product quality or equipment failures necessitating frequent repairs and replacements. ● It's not surprising that an increasing number of mills are installing Monel Metal pickling equipment. They know they can absolutely *depend* on Monel Metal units to produce uniformly clean sheets at minimum cost! ● Monel Metal is a high-Nickel low-copper alloy containing approximately two-thirds pure Nickel. Being resistant to both acids and alkalies, it is practically unaffected by pickling solutions, even after long periods in daily service. Monel Metal equipment thus helps to give a clean and uniform surface on the pickled steel, minimizing undesirable copper flash. Monel Metal is stronger and tougher than steel with a flawless rolled structure. Properly designed and fabricated equipment will stand heavy loads and strains without danger of breakage. ● Monel Metal equipment can be readily fabricated from standard shapes and forms to meet the most highly specialized requirements of your pickling department. Let us send you further information.

THE INTERNATIONAL NICKEL COMPANY, INC.
67 WALL STREET, NEW YORK, N. Y.

INCO MONEL METAL

Monel Metal is a registered trade mark applied to a technically controlled nickel-copper alloy of high nickel content. Monel Metal is mined, smelted, refined, rolled and marketed solely by International Nickel.

A HIGH NICKEL ALLOY

MONEL METAL

NICKEL ALLOYS PERFORM BETTER LONGER

Pig Iron

January Shipments Show Substantial Increase—Inquiry Broadens—Prices Are Steadier

PIG IRON PRICES, PAGE 57

Pittsburgh — Sustained improvement in pig iron orders is lacking although January business was slightly heavier than in December as a result of buying by consumers who had depleted their stocks by the end of the year. Melters are ordering for only early needs and large lots are lacking in inquiry and new business. Prices are nominally unchanged at $15.50 to $16, valley, for No. 2 foundry and $16 to $16.50 for bessemer and malleable.

Boston—Stocks of Dutch iron recently docked at Providence, R. I., are being reduced rapidly considering the general slowness in foundry operations. Several of the largest sales have been made, buyers feeling they can store this iron at prices offered. Under $17, delivered, is reported on this stock. Domestic sales have suffered and shipments have been light. The local furnace has moved small lots at $17.50, furnace, and some Buffalo iron has sold at close to $19, delivered.

New York—Pig iron buying continues at a weekly rate of about 1500 tons, comprised mainly of small lots. Southern iron is slightly more active, and the price is holding at $15.50, local docks. Buffalo iron is $14.50 to $15, furnace.

Philadelphia—The "large black English iron" noted in a recent foreign despatch as sold in this country is generally believed for the account of a Delaware river pipemaker. The amount is estimated at 20,000 tons. The Lorain Steel Co. is expected to close shortly on 1000 tons of low phosphorus iron for its Johnstown, Pa. plant. Eastern Pennsylvania iron is unchanged at $14.50 to $15, furnace.

Buffalo—Orders for pig iron are fairly steady although individually small. Prices have firmed up with $16 the minimum district base. Several sellers have refused to shade $15 on outside tonnage, in view of the extreme low quotations being made on foreign iron along the seaboard. January shipments and sales showed a substantial improvement over December.

Youngstown, O.—Continuing to ship occasional small lots of pig iron, merchant blast furnaces in this district have not broadened their activities. However, Republic Steel Corp. has resumed blast on its Warren, O., stack. An inquiry for 500 tons has been received from the Pittsburgh district by local furnace interests. Quotations are unchanged.

Cleveland — Pig iron shipments continue to improve moderately, January's being the best in six months for one local producer. All lake furnaces report a better attitude on the part of buyers, and sales reflect the trend, those for furnaces with headquarters in Cleveland again amounting to more than 10,000 tons. Rumors of offers of southern iron at less than $10, base, Birmingham, heard recently in northern markets, are unconfirmed. There is less tendency to shade lake furnace prices, though in competitive territories freight differentials sometimes are absorbed, and silicon differentials modified. The usual minimum is $15, base, furnace. For shipment in Cleveland, $16, furnace, still prevails.

Ten carloads of a special brand of high-chrome pig iron has been sold in the Cleveland district in the past month.

Cincinnati—Lack of improvement in the melt has tended to restrain optimism. Two sales of 800 tons each and several others of 500 tons are noted. Prices show a firmer tendency. Southern iron is in light demand.

Chicago—Merchant iron on contract for second quarter only is to the account of a few regular term buyers. Buying appears to be below eastern sales. About 600 tons has been closed in Indiana. Movement of silvery iron for automotive account has been below January expectations. Northern merchant iron nominally is $16.50, and southern iron is $10, base, Alabama furnace.

St. Louis—Sales and inquiries have increased. Bookings in this district in the past week totaled 3200 tons, mainly for prompt delivery. Orders for automotive castings are light, and the majority of stove plants remain idle.

Birmingham, Ala.—Shipments and consumption in this territory are about equal to production. The Tennessee Coal, Iron & Railroad Co. has three blast furnaces on at Ensley and one of the larger furnaces at Fairfield. Republic Steel Corp. and Sloss-Sheffield Steel & Iron Co. each have one stack in operation. The base price is $11 to $12 for southern delivery, and $10, furnace, for northern.

Toronto, Ont.—Demand for pig iron is light, consumers ordering only for immediate requirements. The melt is holding at about 25 per cent. Prices are steady.

Ferromanganese Demand In Upward Trend

Ferroalloy Prices, Page 57

New York—Ferromanganese specications continue mildly upward in volume, reflecting the trend in steelmaking operations. So far as can be learned, no action has yet been taken on the 250 tons for the Ford Motor Co. Prices are steady at $75, duty paid, on lots up to 1000 tons. Domestic spiegeleisen, 19 to 21 per cent, is $27, furnace, and foreign, 26 to 28 per cent, nominal.

One thousand tons of English ferromanganese arrived at Baltimore in the past week.

Pittsburgh—Shipments of ferromanganese and spiegeleisen during January held nearly to the December rate. Specifications call for only small lots, and spot buying is quiet. The market continues $75 for ferromanganese and $27 for spiegeleisen, with discounts applying to larger tonnages.

Semifinished Steel Prices Continue Weak

Semifinished Prices, Page 57

Pittsburgh — Semifinished steel business and shipments show no additional improvement following a slight pickup earlier in January. Requirements of finishing mills generally are light. Prices are weak with $27 usually representing the market on rerolling billets, sheet bars and slabs. Occasional concessions on sheet bars are noted. Forging billets are $34, with wire rods $37.

Youngstown, O.—Business in sheet bars and billets continues restricted, though small lots are being shipped to consumers. Quotations are unchanged at $27, Pittsburgh, Cleveland and Youngstown, for billets and slabs; $27, Pittsburgh, and $26, Youngstown and Cleveland, for sheet bars.

Chicago—Important releases of sheet bars are expected when the Ford program is announced. Sales of billets and blooms are light. Billets, 4 x 4-inch base, are $29, Chicago, while sheet bars are easier at $28 to $29.

Scrap

Prices Steadier and Resistance By Sellers Increases—Supply Continues to Be Limited

Chicago — Sentiment continues more buoyant in steel scrap. January shipments will show substantial gains. Buying remains slow and preparation yards are down or producing with skeleton forces. While surplus scrap for this market apparently is heavy, the supply actually available for quick shipment is believed much less than is indicated. The leading independent steelworks is expected to come into the market within the next week for another substantial order of steelmaking grades. Heavy melting steel is $7 to $7.50, gross delivered, but dealers have been able to buy at $6.75 to $7.25. Burlington railroad sold only a few items of its 5000-ton list last week, withdrawing the remainder.

Boston — Scrap shipments are

Iron and Steel Scrap Prices

Corrected to Friday night. Gross tons delivered to consumers, except where otherwise stated

HEAVY MELTING STEEL

Birmingham	6.50 to 7.50
Boston, dealers	4.00 to 4.50
Buffalo, No. 1	8.00
Buffalo, No. 2	6.25 to 6.50
Chicago	7.00 to 7.50
Cinci., deal.	6.75 to 7.25
Cleve., No. 1	7.25 to 7.75
Cleve., No. 2	7.00 to 7.50
Det., No. 1 deal.	5.75 to 6.25
Det., No. 2 deal.	4.00 to 4.50
E. Pa. del. mill	7.00 to 8.00
N. Y. deal. R. R.	4.50 to 5.50
N. Y. deal. No. 2	3.50 to 4.00
N. Y. deal. yd.	3.50 to 4.00
Pitts. No. 1	10.00 to 10.50
St. L. No. 1 sel.	7.00 to 7.50
Federal, Ill.	6.50 to 7.00
Granite City, Ill.	6.00 to 6.50
Valleys, No. 1	9.00 to 9.50

COMPRESSED SHEETS

Buffalo, dealers	6.25 to 6.50
Chi. (Factory)	5.50 to 6.00
Cleveland	7.00 to 7.25
Detroit, dealers	5.75 to 6.25
E. Pa. new mat.	6.50 to 7.50
Pittsburgh	9.75 to 10.25
Valleys	8.25 to 8.75

BUNDLED SHEETS

Buffalo	5.50 to 5.75
Cinci., deal.	6.25 to 6.75
Cleveland	6.00 to 6.50
Eastern Pa.	5.50 to 6.00
Pittsburgh	9.00 to 9.50
St. Louis	3.50 to 4.00

SHEET CLIPPINGS LOOSE

Chicago	3.50 to 4.00
Cincinnati	3.50 to 4.00
Detroit, dealers	3.00 to 3.75
St. Louis	3.50 to 4.00

STEEL RAILS SHORT

Birmingham	10.00 to 11.00
Boston, dealers	4.25 to 4.75
Buffalo	10.00 to 11.00
Chicago (3 ft.)	8.50 to 9.00
Chicago (2 ft.)	9.25 to 9.75
Cinci., deal.	12.00 to 12.50
Detroit, deal.	10.50 to 11.00
Pitts. (open-hearth, 3 ft. and less)	12.00 to 12.50
St. Louis	11.00 to 11.50

STOVE PLATE

Birmingham	6.50 to 7.00
Boston, con.	4.50 to 5.00
Buffalo	8.25 to 8.75
Chicago, net	5.75 to 6.25
Cinci., deal. net	4.50 to 5.00
Det., net deal.	3.00 to 3.50
Eastern Pa.	7.00
N. Y., deal. mill	4.50 to 5.00
St. Louis	6.50 to 7.00

COUPLERS, SPRINGS

Buffalo	9.75 to 10.25
Chicago	8.50 to 9.00
Eastern Pa.	9.00 to 10.00
Pittsburgh	10.75 to 11.25
St. Louis	8.00 to 8.50

ANGLE BARS—STEEL

Chicago	7.75 to 8.25
St. Louis	7.00 to 7.50

LOW PHOSPHORUS

Buffalo, billets and bloom crops	11.00 to 11.50
Cleveland bil. and bloom crops	14.00 to 14.50
Eastern Pa.	12.00
Pittsburgh billet bloom crops	13.00 to 13.50
Pitts., sheet bar crops	13.00 to 13.50

FROGS, SWITCHES

Chicago	7.00 to 7.50
St. Louis	7.50 to 8.00

SHOVELING STEEL

Chicago	7.00 to 7.50
Cleveland	6.25 to 6.50
St. Louis	6.50 to 7.00

RAILROAD WROUGHT

Birmingham	7.00 to 7.25
Boston, dealers	7.00 to 7.50
Buffalo, No. 1	6.25 to 6.50
Buffalo, No. 2	8.00 to 8.25
Chicago, No. 1	7.25 to 7.85
Chicago, No. 2	7.00 to 7.50
Cinci., No. 2	6.75 to 7.25
Eastern Pa.	9.00 to 9.50
N. Y., No. 1, deal.	6.00 to 6.50
Pitts., No. 2	10.00 to 10.50
St. Louis, No. 1	4.50 to 5.00
St. Louis, No. 2	6.50 to 7.00

SPECIFICATION PIPE

Boston	4.00 to 4.25
Eastern Pa.	9.00 to 10.00
N. Y., deal.	5.00 to 5.50

BUSHELING

Buffalo, No. 1	6.25 to 6.50
Chicago, No. 1	5.50 to 6.00
Cinn., No. 1 dl.	5.00 to 5.50
Cinn., No. 2	3.50 to 4.00
Cleve., No. 2	4.25 to 4.50
Det., No. 1 new deal.	4.50 to 5.00
St. L., No. 1	5.00 to 6.50
Val. new No. 1	8.50 to 9.00

MACHINE TURNINGS

Birmingham	3.00 to 3.50
Boston, dealers	1.05 to 1.55
Buffalo	4.75 to 5.25
Chicago	4.00 to 4.50
Cinn., deal.	3.25 to 3.75
Cleveland	4.00 to 4.50
Detroit	3.25 to 3.75
Eastern Pa.	4.50
N. Y., deal.	1.35 to 1.50
Pittsburgh	6.50 to 7.00
St. Louis	2.50 to 3.00
Valleys	6.50 to 7.00

BORINGS AND TURNINGS
For Blast Furnace Use

Boston, dealers	1.25 to 1.50
Buffalo	6.00 to 6.25
Cinn., deal.	3.25 to 3.75
Cleveland	6.00 to 6.25
Detroit, deal.	4.00 to 4.50
Eastern Pa.	3.00 to 3.50
N. Y., deal.	1.35 to 1.50
Pittsburgh	6.50 to 7.00

CAST IRON BORINGS

Birming., chem.	12.50 to 13.00
Birming., plain	3.00 to 3.50
Boston, chem.	5.50 to 6.50
Boston, deal.	1.05 to 1.55
Buffalo	6.00 to 6.25
Chicago	3.50 to 4.00
Cinn., deal.	3.25 to 3.75
Cleveland	6.00 to 6.25
Detroit, deal.	4.00 to 4.50
Eastern Pa.	3.00 to 3.50
E. Pa., chem.	10.50 to 12.00
N. Y., deal.	1.50 to 2.00
Pittsburgh	6.50 to 7.00
St. Louis	5.00 to 5.50

PIPE AND FLUES

Cinn., deal.	6.00 to 6.50

RAILROAD GRATE BARS

Buffalo	5.25 to 5.75
Chicago, net	5.75 to 6.25
Cincinnati	5.50 to 6.00
Eastern Pa.	7.00
N. Y., deal.	5.00 to 5.50
St. Louis	5.75 to 6.25

FORGE FLASHINGS

Boston, deal.	5.00 to 5.25
Buffalo	6.25 to 6.50
Cleve. ov. 10 in.	7.00 to 7.50
Detroit	5.00 to 5.50

FORGE SCRAP

Boston, deal.	1.50 to 2.00
Chicago	9.50 to 10.00
Eastern Pa., del.	6.75

ARCH BARS, TRANSOMS

Chicago, net	7.85 to 8.40
St. Louis	6.50 to 7.00

AXLE TURNINGS

Boston, deal.	6.75 to 7.00
Buffalo	6.75 to 7.25
Chi., steelworks	5.75 to 6.25
Cleveland	6.75 to 7.00
Eastern Pa. del.	7.00 to 8.00
Pittsburgh, O. H.	8.75 to 9.25
St. Louis	5.00 to 5.50

STEEL CAR AXLES

Birmingham	11.50 to 12.00
Boston, ship. pt.	11.00 to 11.50
Buffalo	12.00 to 12.50
Chicago	11.75 to 12.30
Eastern Pa.	14.50 to 15.00
St. Louis	11.50 to 12.00

SHAFTING

Bos., ship. pt.	10.00 to 10.50
Chicago	7.85 to 8.40
N. Y., deal.	9.00 to 9.50
St. Louis	8.50 to 9.00
E. Penna.	15.00 to 15.50

CAR WHEELS

Birming. iron	8.00 to 9.00
Boston, iron	11.00 to 12.00
Buffalo, iron	9.25 to 9.75
Buffalo, steel	9.75 to 10.25
Chicago, iron	7.00 to 7.50
Chi., rolled steel	8.50 to 9.00
Cincinnati, iron	9.50 to 10.00
E. Pa. steel	9.00 to 10.00
E. Pa. iron	10.00 to 11.00
Pitts. iron	10.00 to 10.50
Pitts., steel	10.75 to 11.25
St. Louis, iron	7.00 to 7.50
St. Louis, steel	6.50 to 7.00

NO. 1 CAST SCRAP

Birmingham	8.50 to 9.00
Buffalo (Mach.)	9.25 to 9.75
Boston, textile	7.00 to 8.50
Chicago, mach.	8.90 to 9.50
Chi., railroad	7.55 to 8.10
Chicago, agri.	7.00 to 7.55
Cinn., mach. cup., gross	10.00 to 10.50
Cleve. cupola	10.00 to 10.50
Det., net deal.	8.00 to 8.50
E. Pa. cupola	10.50 to 11.50
N. Y. cup. deal.	7.00 to 7.50
N. Y., del. local foundries	11.00
Pitts., cupola	10.00 to 10.50
San Fran., del.	13.50 to 14.00
Seattle	5.00 to 7.50
St. L. No. 1 ma	7.00 to 7.50
St. L., No. 1	6.50 to 7.00

HEAVY CAST

Boston	6.00 to 6.50
Bost. mach. cast	8.00 to 9.00
Buffalo, break	5.50 to 6.00
Cleve., break	6.00 to 6.50
Detroit, auto, net deal.	10.00 to 10.50
Det., break., dl.	4.75 to 5.25
Eastern Pa.	9.00 to 9.50
N. Y. break, dl.	5.75 to 6.00
N. Y. No. 1 dl.	7.00 to 7.50
Pittsburgh	8.00 to 8.50

MALLEABLE

Boston R. R.	8.50 to 9.00
Buffalo	9.50 to 10.00
Chicago, agri.	6.50 to 7.00
Chicago, R. R.	7.00 to 7.50
Cinci., R. R. del.	9.25 to 9.75
Cinci., agri. del.	9.00 to 9.50
Cleveland, rail	10.00 to 10.50
Det. auto deal.	9.00 to 9.50
St. Louis, rail	5.50 to 6.00

RAILS FOR ROLLING
5 feet and over

Birmingham	10.00 to 10.50
Boston, deal.	6.00 to 7.00
Buffalo	8.50 to 9.50
Chicago	10.00 to 10.50
Eastern Pa.	10.00 to 10.50
New York	6.25 to 6.75
St. Louis	9.00 to 9.50

LOCOMOTIVE TIRES

Chicago, cut	8.00 to 8.50
St. L., No. 1	8.00 to 8.50

LOW PHOS. PUNCHINGS

Chicago	9.50 to 10.00
Buffalo	10.00 to 11.00
Eastern Pa.	12.00
Pittsburgh	11.00 to 11.50

HIGH AND LOW CARBON
STRIP STEEL

HOT AND COLD ROLLED
-- *in all tempers*

The rapid growth and development of modern forming and stamping practice has widened the scope and created new demands for strip steel in many branches of industry.

Since 1897 we have specialized in high quality Hot and Cold Rolled Strip Steel, which constantly met the increasing requirements in this field.

A wide range of high and low carbon strip steel in all tempers—widths from ¾" to 24"—hot and cold rolled —coiled or cut to lengths that best suit your needs.

Also Bright Cold Rolled ALLEGHENY STAINLESS STEELS in all grades. Excellent for drawing and forming. Resists corrosion, may be welded and soldered.

Save with Steel

WEST LEECHBURG STEEL COMPANY

General Offices: FARMERS BANK BLDG., PITTSBURGH, PA.

BRANCH SALES OFFICES:

NEW YORK CHICAGO DETROIT
HARTFORD ST. LOUIS
PHILADELPHIA NEWARK TOLEDO

Edgcomb Steel Co. Edgcomb Steel Corp. Dean Higgins & Co.

Warehouse Stocks of Cold Rolled Strip Steel Are Carried by
Edgcomb Steel Co., Philadelphia
Edgcomb Steel Corp., Newark
Jos. T. Ryerson & Son, Chicago

light with little heavy melting steel moving to Central Massachusetts at $6.50. Dealers are paying $3.15 to $3.50 for No. 2 heavy steel shipments to Pennsylvania, but the movement is not heavy. Cast grades are relatively more active, but buying is spotty.

New York—Shipments are light and irregular with little moving from yards. Prices are steadier, although still low. Purchase of No. 1 steel for barge storage has slowed up with reports of $5.25 paid, although $5.50 has been the market for some time. The Florence, N. J., foundry has stopped taking breakable cast for which $8.50 has been paid delivered. This grade at Harrisburg, Pa., is nominally $9. Malleable to eastern Pennsylvania has moved at $8.50 delivered.

Philadelphia—A reduction of 50 cents in the price of No. 2 heavy melting steel is the only change in steel and iron scrap. This grade now is $5.50 to $6.50, delivered, with the mill at Pancoyd, Pa., taking a small tonnage at the inside figure.

Buffalo—All three principal consumers here are holding up scrap shipments. One has taken no material in eight weeks. Dealers say practically no outside scrap is moving to Buffalo and that the lack of incoming material is holding prices firm in spite of lack of new orders.

Pittsburgh—Recent sales of heavy melting steel involved about 10,000 tons but prices paid represent no change. Buying has been confined to one consumer with the price usually $10.25 although $10.50 has been paid for one point. Activity elsewhere is dull and with some embargoes still effective on shipments against old orders no new buying is in early prospect. Available scrap to dealers at present prices is limited. Offerings by railroads continue light, the February list of the Pennsylvania railroad involving 21,465 net tons. The list includes 3850 tons of No. 1 heavy melting steel and 2350 tons of steel rails.

Cleveland—The recent purchase of about 1000 tons of blast furnace scrap by a local steelmaker for storage has stiffened quotations on mixed borings and turnings by $1.50 to a range of $6 to $6.25.

Detroit—Scrap prices are stronger. Offerings by local producers have not increased measurably, and demand from Pittsburgh and Youngstown melters, especially for open-hearth grades, is heavier. Borings and turnings are advancing, due partly to covering for a local sale and to the policy of some dealers to stock for water shipment in the spring.

Cincinnati — Quotations on iron and steel scrap are untested in a continued dull market. The Louisville & Nashville railroad recently withdrew the January list as bids were unsatisfactory.

St. Louis—The market for iron and steel scrap continues to mark time. However, the general tone is decidedly better than in many weeks. Steel mills are beginning to cast about quietly with the view of acquiring tonnage. Dealers, while not changing their quotations, are taking a firmer attitude, believing that buying in quantity will develop soon. There is no disposition to sell short at prevailing levels, and little future contracting has been done.

Birmingham, Ala.—While several melters are reported using scrap, dealers indicate no improvement in trade. New business is in small lots.

Toronto, Ont.—Stagnation continues in iron and steel scrap. No demand is reported for steel grades, with the Hamilton mills out of the market. Spotty sales are being made of No. 1 machinery cast, stove plate and wrought iron, but otherwise there is no call. Dealers are out of the market, shipping from yard supplies. Prices are unchanged.

Canadian Scrap

Dealers' Buying Prices

Per Gross Ton

MONTREAL

Iron axles	$11.00
Steel axles	10.00
Car wheels	8.00
Stove plate	8.00
Wrought pipe	2.00
Turnings	2.00
Heavy melting steel	6.00

TORONTO

Steel axles	7.00
Iron axles	7.00
Heavy melting steel	7.00
Turnings	2.00
No. 1 mach. cast (net)	9.00
Malleable (net)	7.00

No Cinder or Scale Sold

Philadelphia—With merchant furnaces in this district out of blast, there was no January contracting for mill cinder and scale for the first time in years. Hence, prices are nominal. Last January cinder sold for $2.50, delivered, and scale for $3.50, delivered.

Coke

Warm Weather Is Restricting Requirements—Prices Steady—Southern Output Up Slightly

COKE PRICES, PAGE 57

Pittsburgh—Beehive coke demand is slow in all directions. Blast furnace requirements are light while operations of water gas producers have been affected adversely by industrial and weather conditions. Mild weather still restricts activity in domestic coke. Foundry coke orders are quiet and unchanged. Prices continue $2.25 to $2.35 for furnace coke, and $3.25 to $4.50 for foundry grades.

Birmingham, Ala. — Production has been increased slightly by the Tennessee Coal, Iron & Railroad Co. Independent producers still are shipping small lots. Production is above 50 per cent. Quotations are unchanged.

New York—The $2.25, Connellsville, price on beehive furnace coke is disappearing, leaving $2 as the usual price, subject to concessions. Standard beehive foundry coke continues $3 to $3.25, Connellsville, and premium brands at $4.50, Latrobe. Little pickup is noted. By-product foundry coke is unchanged at $8.76 to $9.16, delivered Newark; $10.50, New England; and $8.75, Philadelphia. Prices on domestic by-product coke are soft.

Cincinnati—Demand for by-product foundry coke is not impressive. Quotations remain unchanged despite price modifications in other Ohio districts.

St. Louis—Demand for metallurgical coke shows no marked change. Melters are ordering only what they need, by-product interests reporting a smaller volume of contracting than at any similar period in recent years.

Greece has ten foundries, employing about 140 men and total motive power of not more than 58 horsepower. Domestic iron ore is not utilized, being exported, and foundry raw material imported.

Steel, Wrought and Cast Iron Pipe, and Tubing

Welded Iron, Steel Pipe

Base Price $200 Ton

Base Discounts on steel pipe, Pittsburgh and Lorain, O., to jobbers in carloads. Indiana Harbor, Ind., and Evanston, Ill., 2 points less. Chicago del., 2½ points less. Wrought pipe, Pittsburgh base.

BUTT WELD

	Steel			Iron	
In.	Blk.	Gal.	In.	Blk.	Gal.
½	58	44½	½	23	5
¾	62	50½	¾	28	11
1—3	64	52½	1—1¼	31	15
			1½—2	35	18

LAP WELD

2	57	45½	2	23	9
2½—6	61	49½	2½—3½	28	13
7—8	58	45½	4—6	30	17
9—10	56	43½	7—8	29	16
11—12	55	42½	9—12	26	11

BUTT WELD

Extra strong, plain ends

½	55	44½	¼ & ⅜	+13 +48
¾	60	49½	½	23 7
1—1½	62	51½	¾	28 12
2—3	63	52½	1—2	34 18

LAP WELD

Extra strong, plain ends

2	55	44½	2	29	13
2½—4	59	48½	2½—4	34	20
4½—6	58	47½	4½—6	33	19
7—8	54	41½	7—8	31	17
9—10	47	34½	9—12	21	8
11—12	46	33½			

To large jobbers these discounts on steel pipe increased on black by 1 point and two discounts of 5 per cent; on galvanized by 1½ points with two 5 per cents. Direct mill shipments, base, 5 and 2½. On iron pipe large jobbers obtain additional discount of 1 point with 5 and 2½ per cent on black and galvanized.

BOILER TUBES

Carload discounts, Lap Welded Steel		f.o.b. Pittsburgh Charcoal Iron	
2—2¼	38	1¾	8
2½—2¾	46	2—2¼	13
3	52	2½—2¾	16
3¼—3¾	54	3	17
4	57	3¾—3½	18
4½—6	46	4	20
1½	1	4½	21

On lots of a carload or more, above base discounts subject to preferential of two 5 per cent discounts on steel and 10 per cent on charcoal iron. Smaller quantities subject to following modifications from base discounts.

Lap Welded Steel—Under 10,000 pounds, 6 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and one 5 per cent; on 10,000 pounds to carload, 4 points under base and two 5 per cents. Charcoal Iron—under 10,000 pounds, 2 points under base; on 10,000 pounds to carload, base and one 5 per cent.

STANDARD COMMERCIAL SEAMLESS BOILER TUBES COLD DRAWN

1 inch	61	3	46
1¼—1½	53	3¼—3½	48
1¾	37	4	51
2—2¼	32	4½, 5, 6	40
2½—2¾	40		

HOT ROLLED

2—2¼	38	3¼—3½	54
2½—2¾	46	4	57
3	52	4½ 5, 6	46

Subject to 5 per cent supplementary discount for carload lots. On less than 10,000 pounds, base discount reduced 6 points. On 10,000 pounds to carload, base discount reduced 4 points and one 5 per cent allowed. No extra for lengths up to and including 24 feet. Sizes smaller than 1 inch and lighter than standard gage to be held at mechanical tubes list and discount. Intermediate sizes and gages not listed take price of next larger outside diameter and heavier gage.

Seamless Tubing

Cold drawn; f.o.b. mill discounts

Random lengths over 5 ft. 55%
Selected lengths, 1—18 ft. 53%

Cast Iron Water Pipe

Class B Pipe—Per Net Ton

Six-inch and over, Bir.	$33.00 to 35.00
Four-inch, Birmingham	37.00 to 39.00
Four-inch, Chicago	43.40 to 44.40
Six to 24-inch, Chicago	40.40 to 41.40
Six-inch and over, N. Y.	28.00 to 30.00
Four-inch, New York	34.50 to 36.50
Stand. fittings, Bir. base	$100.00

Six to 24-inch, base; over 24-inch plus $20; 4-inch, plus $10; 3-inch plus $20; gas pipe fittings, $5 higher. Class A pipe $4 higher than Class B.

Warehouse Quotations at Leading Centers, in Cents Per Pound

(All Philadelphia prices subject to quantity differentials except reinforcing and Swedish bars)

STEEL BARS

Baltimore	3.00c
Boston	3.25c
Buffalo	3.00c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Cleveland	2.75c
Detroit	2.85c
Houston	2.65c
Los Ang.	3.40c
New York‡(d)	3.10c
Philadelphia	2.45c
Pittsburgh	2.60c
Portland	2.50c
San Fran.	2.40c
Seattle	2.50c
St. Louis	3.00c
St. Paul	3.00c
Tulsa	3.25c

IRON BARS

Baltimore	3.25c
Boston	3.25c
Buffalo	3.15c
Chattanooga	3.00c
Chicago	2.75c
Cincinnati	3.00c
Detroit	2.85c
New York‡(d)	3.10c
Philadelphia	2.45c
St. Louis	3.00c
Tulsa	3.25c

REINFORC. BARS

Baltimore	2.50c-3.31c
Boston	3.25c
Buffalo	2.95c
Chattanooga	3.00c
Cincinnati	3.00c
Cleveland	2.10-2.25c
Detroit	2.85c
Houston	3.00c
Los Ang. cl.	2.50c
Los Ang. lcl.	2.80c
New York	2.65c-3.10c
Phila.	2.26½c
Pittsburgh	2.60c
San Fran. cl.	2.60c
San Fran. lcl.	2.90c
Seattle	2.50c
St Louis	3.15c
Tulsa	3.25c
Young.	2.30c-2.60c

SHAPES

Baltimore	3.00c
Boston	3.35c
Buffalo	3.25c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland	2.95c
Detroit	3.10c
Houston	3.25c
Los Ang.	3.40c
New York(d)	3.10c
Philadelphia	2.45c
Pittsburgh	2.85c
Portland	2.50c
San Fran.	2.40c
Seattle	2.50c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	3.50c

PLATES

Baltimore	3.00c
Boston	3.35c
Buffalo	3.25c
Chattanooga	3.20c
Chicago	3.00c
Cincinnati	3.25c
Cleveland, ¼-in. and thicker	2.95c
Clev., 3/16-in.	3.20c
Detroit	3.10c
Det., 3/16-in.	3.10c
Houston	3.00c
Los Angeles	3.40c
New York(d)	3.30c
Philadelphia	2.45c
Phila. floor	5.10c
Pittsburgh	2.85c
Portland	2.50c
San Fran.	2.40c
Seattle	2.50c
St. Louis	3.25c
St. Paul	3.10c
Tulsa	3.50c

NO. 10 BLUE

Baltimore	3.25c
Boston	3.50c
Buffalo	3.50c
Chattanooga	3.50c
Chicago	3.20c
Cincinnati	3.30c
Cleveland	3.00c
Detroit	3.35c
Houston	3.35c
Los Ang.	3.95c
N. Y. (d)	3.00c-3.40c
Portland	3.50c
Phila.*† (e)	2.90c
Pitts.**	3.00c to 3.10c
San Fran.	3.65c
Seattle	3.50c
St. Louis	3.45c
St. Paul	3.40c
Tulsa	3.70c

NO. 24 BLACK

Balt.*†	3.50c
Boston	4.20c
Buffalo	4.10c
Chattanooga	3.65c
Chicago	3.55c
Cincinnati	3.75c
Cleveland	3.25c
Detroit	3.50c
Los Ang.	4.70c
New York	3.50c-3.65c
Phila.*†(e)	3.40c
Pitts.**	3.40c
Portland	4.00c
San Fran.	4.15c
Seattle	4.00c
St. Louis	3.80c
St. Paul	3.545c
Tulsa	4.75c

NO. 24 GAL. SHEETS

Balt.*†	4.00c
Boston	4.75c
Buffalo	4.35c
Chattanooga	3.95c
Chicago	4.10c
Cincinnati	4.25c
Cleveland	3.75c
Detroit	4.00c
Houston	4.25c
Los. Ang.	5.10c
New York	4.00c-4.10c
Phila.*†(e)	3.75c
Pitts.**	3.90c
Portland	4.50c
San. Fran.	4.65c
Seattle	4.50c
St. Louis	4.35c
St. Paul	4.23c
Tulsa	5.10c

BANDS

Baltimore	3.50c
Boston	3.75c
Buffalo	3.35c
Chattanooga	3.20c
Chicago	2.95c
Cincinnati	3.20c
Cleveland	3.00c
Det. 3/16-in. & lighter	3.15c
Houston	3.65c
Los Ang.	4.30c
New York(d)	3.40c
Philadelphia	2.75c
Pittsburgh	2.95c
Portland	3.50c
San Fran.	3.75c
Seattle	3.50c
St. Paul	3.75c
Tulsa	3.45c

HOOPS

Baltimore	3.50c
Boston	4.90c-5.40c
Buffalo	3.90c
Chicago	3.50c
Cincinnati	3.75c
Cleveland	3.55c
Det. No. 14 & lighter	3.65c
New York	3.75c
Philadelphia	3.00c
Pittsburgh	3.60c
Seattle	4.90c
St. Paul	3.75c

COLD FIN. STEEL

Rounds & Hexagons

Baltimore (c)	3.30c
Boston	3.50c
Buffalo	3.15c
Chattanooga*	3.75c
Chicago	3.10c
Cincinnati	3.50c
Cleveland	3.10c
Detroit	3.40c
Los Ang. (a)	4.50c
New York	3.30c
Philadelphia*	3.30c
Pittsburgh	3.10c
Portland (a)	4.50c
San Fran.(a)	4.25c
Seattle (a)	4.50c
St. Paul (a)	3.85c
St. Louis	3.35c
Tulsa	4.65c

Flats and squares 50c extra, except Tulsa, where 5.14c is quoted. (a) Rounds, hex. only.

COLD ROLL. STRIP

Boston 0.100 in., 500 lb. lots	5.30c
Buffalo	5.25c
Chicago (soft) (b)	5.65c
Cincinnati	5.80c
Cleve. (b)	5.55c
Detroit	5.40c
Phila. (c)	4.55c
New York	4.55c

(b) Net base straightening, cutting, boxing 1 ton or more.

(c) Plus mill, size and quantity extras.

(d) Minus quant. diff.

(e) New mill classif.

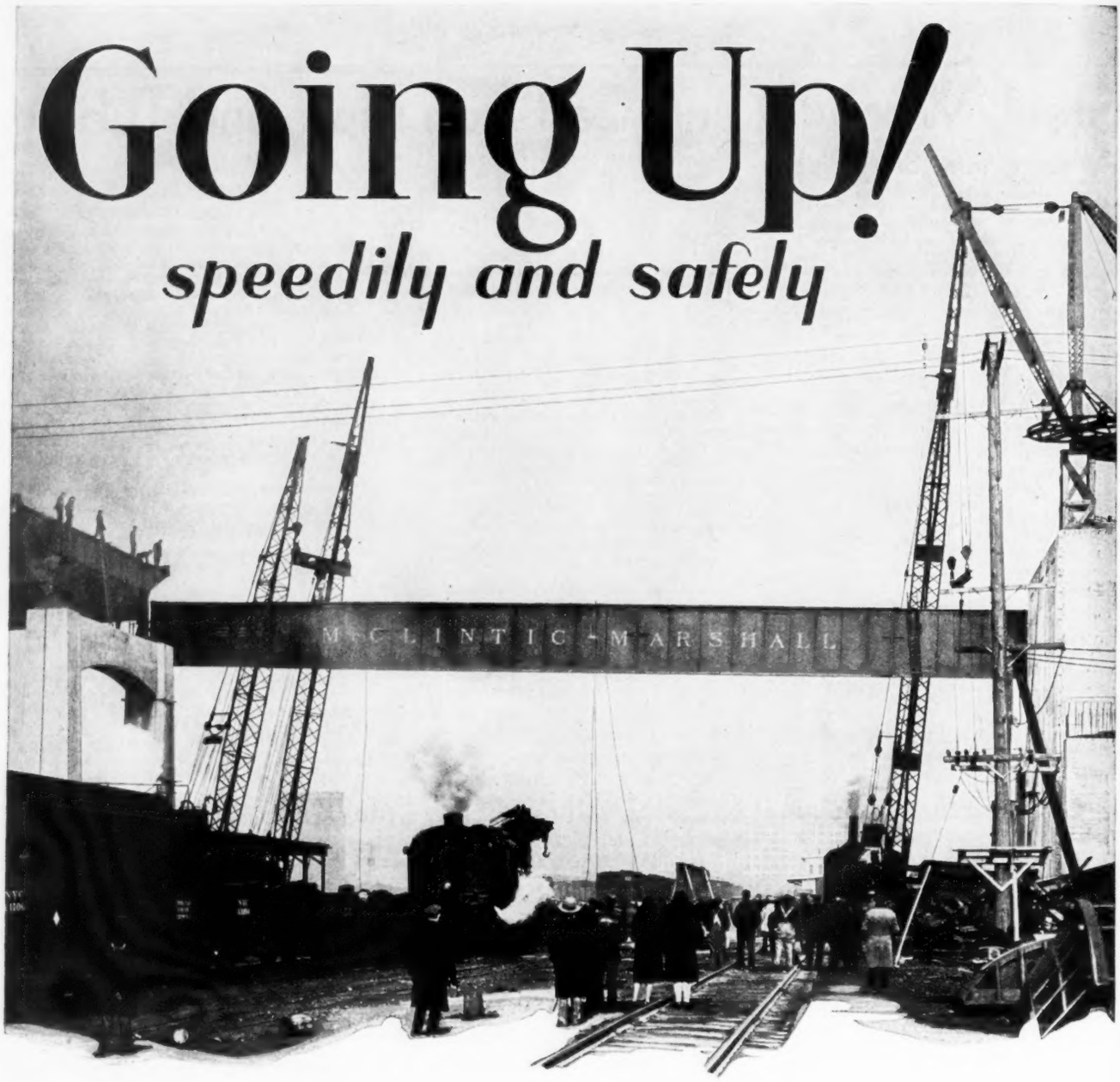
‡ Domestic bars.

* Plus quan. extras.

** Less than 25 sheets.

*† 50 or more bundles.

Going Up!
speedily and safely



It's a spectacular sight to watch a giant girder being hoisted speedily and safely into place but the remarkable part about it is the men and the machines which make possible such a feat. The above view shows a McClintic Marshall job with three Industrial Brownhoists and a derrick placing a 154-foot, 84-ton girder into position seventy feet above the ground. This is one of the longest girders ever erected in this country.

Absolute dependability and economy of operation are essential characteristics of Industrial Brownhoist cranes—features which make them the choice of the majority of the country's leading structural erection companies, railroads, and industrial plants. To those interested in placing their handling methods on the same money saving basis, our unequalled experience and the world's most complete line of these cranes are always available.

Industrial Brownhoist Corporation, General Offices, Bay City, Michigan
District Offices: New York, Philadelphia, Chicago, Cleveland.

INDUSTRIAL BROWNHOIST

Mill Products

Base price cents per pound f.o.b. mill except otherwise specified. Copper and brass product prices based on 7.50c, Conn., for copper

Sheets	
Yellow brass (high)	13.37½
Copper, hot rolled	16.62½
Lead sheets, to jobbers	6.75
Zinc sheet (100-lb. base)	9.00
Tubes and Pipes	
Seamless yellow brass (high)	16.62½
Seamless copper	16.12½
Rods	
Yellow brass (high, full turnings)	11.12½
Naval brass	12.25
Anodes	
Copper untrimmed	14.12½
Wire	
Yellow brass (high)	13.37½

Old Metals

Dealers' buying prices, cents lb.

No. 1 Composition Red Brass	
New York	4.25 to 4.50
Chicago	3.62½ to 4.12½
Cleveland	4.25 to 4.50
St. Louis	3.50
Heavy Yellow Brass	
New York	2.75 to 3.00
Heavy Copper and Wire	
New York	5.25 to 5.50
Boston	5.00 to 5.25
Chicago	4.12½ to 4.37½
Cleveland	4.50 to 5.00
St. Louis	3.75
Composition Brass Borings	
New York	4.00 to 4.25
Yellow Brass Tubing	
Cleveland	2.50 to 3.00
Light Copper	
New York	4.25 to 4.50
Chicago	3.62½ to 4.12½
Cleveland	3.75 to 4.00
St. Louis	3.50
Light Brass	
Boston	1.75 to 2.00
Chicago	2.37½ to 2.62½
Cleveland	1.50 to 2.00
St. Louis	2.00
Lead	
St. Louis	2.50
Zinc	
New York	1.00 to 1.25
Cleveland	1.00 to 1.25
St. Louis	1.25
Aluminum	
Clippings, new, soft, Cleve.	11.00 to 11.50
Clippings, hard, Cleveland	7.50 to 8.50
Borings, Cleveland	2.75 to 3.25
Mixed cast, Cleveland	4.00 to 4.25
Mixed cast, Boston	3.25 to 3.50
Mixed cast, St. Louis	3.50 to 4.00

Secondary Metals

Remelt aluminum No. 12	8.50 to 9.50
Brass ingots, 85-5-5-5	7.12½

Metals

General Demand Slow Except For Slight Increase in Lead—Zinc Drops to New Low

New York—All metals were in slow demand last week with the exception of lead which was slightly more active. Zinc fell to a new record low level.

Copper—The market continued dull with quotations holding nominally at 7.50c, Connecticut. All mine producers and leading custom smelters held to the 7.50c quotation, believing that no additional business could be obtained by weakening the price structure. Purchases were made from one or two custom smelters last week at 7.25c, however, and metal was available in the outside market at under 7.00c. Consumers apparently are well supplied and sales last week were extremely limited at any price. Little pickup in copper demand is looked for until material improvement appears in such important consuming groups as the automotive, building and electrical equipment industries.

Lead—Buying was more active last week but was insufficient to acquire the proportions of a pronounced movement. Prices, however, continued to display a steady tone. February needs of consumers are estimated to be more than half covered. Sellers are opening books for March delivery this week.

Zinc—The decline in zinc quotations to the lowest level ever recorded last week failed to stimulate increased interest on the part of consumers. Selling pressure brought prices below the 3-cent level but some interests remained out of the market at the lower levels.

Tin—Prices firmed up early this week only to ease off later. Business recently has been sluggish with prices determined largely by resales out of warehouse or from dock. International tin committee has placed drastic curtailment of production in effect. Prices, however, are not expected to strengthen materially until the general business situation improves, particularly in the United States.

Antimony—The metal eased off to 5.95c, duty paid, last week but continued in dull demand.

By-Product Supplies Light; Prices Steady

New York—Supplies of toluol and xylol are light and distributors are barely able to meet current demand. A slight increase in demand for toluol is noted from lacquer makers. Current output of benzol is about equal to sales. Production continues light. Naphthalene is being shipped against contracts in moderate volume, a good part of the material moving to the chain store trade. Spot demand is nil.

Coke By-Products

	Spot
Per Gallon, Producers' Plants, Tank Lots	
Pure benzol	$0.20
90 per cent benzol	0.20
Toluol	0.30
Solvent naphtha	0.26
Commercial xylol	0.26
Per Pound at Producers' Plants in 250-Pound Drums	
Phenol	0.16 to 0.17
Per Pound at Producers' Plants in	
Naphthalene flakes	3.75 to 4.75
Naphthalene balls	4.75 to 5.75
Per 100 Pounds Atlantic Seaboard	
Sulphate of ammonia	$1.10 to $1.20

Quicksilver Quiet

New York—Sales of quicksilver are dull and prices practically unchanged from those of a week ago. The metal is quoted $65 to $66 a virgin flask of 76 pounds. A few small sales have been reported with one seller indicating that one lot was booked at $67. A large order brought $64. Prevailing prices range from $65 to $66, depending on quantity ordered.

Prices of the Week, Cents a Pound

	Copper: Electro delivered	Copper: Lake delivered	Copper: Casting refinery	Straits Tin: New York Spot	Straits Tin: New York Futures	Lead N. Y.	Lead East St. L.	Zinc St. L.	Aluminum 98-99%	Spot Antimony	Ingot Nickel
January 23	7.50	7.62½	7.25	21.95	22.40	3.75	3.55	3.00	22.90	6.00	35.00
January 25	7.50	7.62½	7.25	21.85	22.30	3.75	3.55	3.00	22.90	6.00	35.00
January 26	7.50	7.62½	7.25	22.25	22.55	3.75	3.55	2.90	22.90	6.00	35.00
January 27	7.50	7.62½	7.25	21.85	22.20	3.75	3.55	2.90	22.90	5.95	35.00
January 28	7.50	7.62½	7.25	21.75	22.10	3.75	3.55	2.90	22.90	5.95	35.00
January 29	7.50	7.62½	7.25	21.70	22.05	3.75	3.55	2.90	22.90	5.95	35.00

Pacific Coast

Light Buying Continues with Little Business in Prospect—Sunnyvale Airport Provides Some Tonnage—Prices Show Little Variation in Absence of Volume to Give Test

Seattle—Many projects planned by cities and private interests are being delayed by lack of financial support. Bids for several important federal projects are to be opened within 30 days. These include postoffice buildings at Anaconda, Mont., Bend, Oreg., Longview, Wash., Fairbanks, Alaska, and a soldiers' home at Roseburg, Oreg.

Awards last week in this territory approximated 750 tons of reinforcing bars, shapes and cast iron pipe. Several large tonnages are pending. Prices continue to drag at bottom levels and inquiry is restricted.

Bars, Shapes and Plates

Truscon Steel Co., Youngstown, O., has been awarded the subcontract to furnish 300 tons of reinforcing material for the federal building at Portland, Oreg., through Murch Bros., St. Louis, general contractors. Several small concrete bars tonnages are undecided. The largest job in sight is the Seattle University bridge approach, 719 tons, bids on which were opened Jan. 29.

Lockwood-Canaday Irrigation Co., O. M. Bise, secretary, Malaga, Chelan county, Wash., will receive tenders Feb. 1 for a pumping plant and 3200 feet of 22-inch steel pipe, about 100 tons. Hancock Oil Co., Seattle, plans immediate construction of a 6400-barrel steel storage tank here.

Poole & McGonigle, Portland, have the contract to fabricate 375 tons of shapes for a 350-foot bridge at Washtucna, Wash., for the Spokane, Portland & Seattle railroad. J. H. Pomeroy, Seattle, has the contract for erection. The same firm will start within 30 days to erect 850 tons for the Duwamish bridge, Seattle, for the Northern Pacific railroad and also has the contract to erect the steel in the navy hangar at Sunnyvale, Calif., fabrication by Wallace Structural Steel & Bridge Co., Seattle. Structural awards pending include 2000 tons for the Portland federal building and 250 tons for a bureau of roads structure at Vancouver, Wash., for which A. Guthrie & Co., Portland, Oreg., was low at $153,700. F. R. Archer, warden of the McNeil Island prison, Washington, is receiving bids for a 5-ton overhead electric traveling crane.

Pipe Needs Held Back

Specifications are coming out slowly and the trade is not experiencing the activity expected at this season. Municipalities are reducing schedules to absolutely necessary requirements while industrial inquiry is almost totally lacking. This week Spokane awarded 70 tons of 6-inch pipe to R. D. Wood & Co., New York. Seattle will shortly open bids for the Kenyon street improvement, involving about 125 tons of 12-inch pipe, a large quantity of 30-inch having been dropped from original plans.

Old Materials at Low Level

The market is unchanged. There are no established prices as mills are not buying and dealers are overstocked, being unable to move material except in limited tonnages. Cold weather is hampering collection but shippers have considerable material on hand which they are unable to sell even at record low prices.

Coast Pig Iron Prices

Utah basic	$22.00 to 24.00
Utah foundry	22.00 to 24.00
*German	24.25
*Indian	22.00 to 24.00

*C.i.f. duty paid.

Small Tonnages Rule

San Francisco—*(By Air Mail)*—Movement of iron and steel products on the Pacific Coast so far this year has been confined to relatively unimportant tonnages and from present indications little real business is expected during the next thirty days, although considerable government work is about ready for figures. The largest new inquiry calls for 1500 tons of structural steel for a post office at Sacramento, Calif., bids on which will be opened March 2. Lettings included 472 tons of cast iron pipe for Burbank, Calif., placed with the American Cast Iron Pipe Co.

Awards of concrete bars aggregated 1875 tons, bringing the total for the year to 3822 tons, compared with 4500 tons for the corresponding period in 1931. Unnamed interests booked 165 tons for a storage plant in Upland, Calif. Soule Steel Co. booked 100 tons for a court house at Martinez, Calif., and the Concrete Engineering Co. was awarded 300 tons for a teachers' college at San Jose, Calif. Over 2500 tons are involved in a dam on the San Gabriel river, Pasadena, Calif., bids on which will be called soon. San Francisco district prices on warehouse material continue unchanged at 2.60c, base, on carload lots, Los Angeles quotations are weak at 1.90c, base. Little movement is noted in the merchant bar market and prices hold at around 2.05c, c.i.f.

Many Plates Pending

No plate awards of note were reported. Pending business, however, exceeds 3500 tons. Bids were opened this week on 850 tons for an 18-inch and 20-inch welded steel pipe line for Signal Hill, Calif. Bids will be opened in February on 500 tons for 85 helium tanks for the Sunnyvale, Calif., dirigible base and on 100 tons for a tank and tower for the same project. The largest pending project involves close to 1000 tons for a gas holder at Sunnyvale, Calif. Plate prices continue at 1.80c to 1.85c, c.i.f.

While demand for structural steel shapes is not large at the moment, over 38,000 tons are up for figures or pending. Bids will be called for shortly for 600 tons for a bridge over H Street, Sacramento, Calif. Bids will be opened Feb. 23 on 500 tons for shop buildings at Pearl Harbor, T. I. Plain structural shapes continue to be quoted at 2.05c, c.i.f. for standard shapes and at 2.15c, for wide flange material.

Other Finished Material

Cast iron pipe awards aggregated over 800 tons, bringing the total for the year to 1857 tons, compared with 6530 tons for the same period a year ago. C. G. Claussen & Co. booked 207 tons of 4 and 6-inch pipe for Whittier, Calif., and the National Cast Iron Pipe Co. took 143 tons for Alhambra, Calif. The Pacific State Cast Iron Pipe Co. secured 155 tons of 4 to 8-inch cast pipe for the Orange county water works district, No. 5, Santa Ana, Calif. Bids will be opened Feb. 3 for 250 tons of 8-inch pipe for the dirigible base at Sunnyvale, Calif. Little of importance has transpired lately in the market for standard steel pipe.

A Hot Bed of Universal Character

(patents applied for)

Sponge iron that enters the Birdsboro built 900 ton Ingot Press, recently installed in the new Ambridge plant of the A. M. Byers Company, finally stages its colorful career as rolled skelp working its way, by degrees, across the thirty-five foot expanse of the specially constructed hot-bed—also of Birdsboro design and build.

Being of the convertible *notch bar flat bar* type of bed, the Byers' installation (illustrated), known as the 18″—16″ skelp mill design, is capable of handling skelp up to a 19″ width and $\frac{7}{8}$″ thickness with the *flat bar* arrangement in position—which also permits the free travel of rounds. With the mechanical action of the turning device, the *notch bars* are readily brought into position.

Shuffle bars complete the transfer, bringing the stock onto the run-out table, from which point it is sheared and piled. The bed's total length is 162 feet.

BIRDSBORO
STEEL FOUNDRY AND MACHINE COMPANY
DESIGNERS AND BUILDERS
BIRDSBORO, PENNSYLVANIA

Europe

Tariff Prospects Hearten Steel Industry—Exports Show Gain—Continent Has Better Tone

London — (*By Radio*) — A tariff revenue bill carrying duties of 10 per cent, including iron and steel, is planned to be rushed through parliament to relieve the present difficult situation. This is having a heartening effect on the industry. Middlesbrough pig iron demand is improving but the Midland light castings demand is dropping. Substantial Continental steel tonnages have been ordered for delivery to mills in the Birmingham district.

Galvanized sheets have been selling in improved volume for South America and the West Indies. Tin plate production and buying are satisfactory. Midland steel mills are operating at 50 per cent of capacity. Steel exports show a slight gain.

The Continent reports a better tone, South America placing some additional tonnage. France, Belgium and Germany are competing keenly for whatever is offered.

Steel from Continent Is Burden to British Mills

Birmingham, Eng.—At the quarterly meeting of the steel and iron trade the general conclusion was that there is less activity in the iron trade than in the later months of 1931. At that time there was a definite spurt in the orders to British works as well as a rush to obtain delivery of material from the Continent. The trade is now experiencing the aftermath, which has left the works with more material on hand than they can possibly deal with for months to come. In the view of one reliable authority a tariff imposed at once would make no difference whatever to English works before August at least.

Specifications for pig iron are at about the same rate as before Christmas. Most of the iron is going to makers of light castings but there is still no quickening among engineering shops. While the position generally is better than three months ago furnacemen are anxious enough to press for delivery dates wherever there are contracts. In the Middlesbrough district inquiries are gradually spreading. A steady increase is expected in the domestic market but there seems little hope of expansion in exports.

Heavy steel is dull and producers everywhere welcome any tonnage however small. An order has been placed this week for railroad bridge work in the north of England amounting to 1200 tons of steel to be supplied by Dorman Long & Co.

Although the tone in the Welsh tin plate trade continues steady there is not sufficient business to obtain a better price than 14s 6d ($2.51).

Current Iron and Steel Prices of Europe

Dollars at Rates of Exchange, Jan. 28

Export Prices f.o.b. Ship at Port of Dispatch—By Cable (or Radio)

	British gross tons U. K. ports		Continental Channel or North Sea ports, metric tons Gold parity, $4.8665	
PIG IRON	£ s d		£ s d	£ s d
Foundry, 2.50-3.00 Silicon	$10.15	2 18 6	$ 9.96 to $10.45	2 1 0 to 2 3 0
Basic bessemer	9.72	2 16 0*	9.48 to 9.72	1 19 0 to 2 0 0
Hematite, Phos. .03-.05	11.28	3 5 0	.....	.....
SEMIFINISHED STEEL				
Billets	$18.65	5 7 6	$11.66 to $11.91	2 8 0 to 2 9 0
Wire rods, No. 5 gage	29.50	8 10 0	24.30 to 25.52	5 0 0 to 5 5 0
FINISHED STEEL				
Standard rails	$28.63	8 5 0	$28.55	5 17 6
Merchant bars	1.09c	7 0 0	.59c to .61c	2 14 0 to 2 15 0
Structural shapes	1.20c	7 15 0	.57c to .58c	2 12 0 to 2 13 0
Plates, †¼ in. or 5mm	1.36c	8 15 0	.72c to .73c	3 5 0 to 3 6 0
Sheets, black, 24 gage or 0.5 mm.	1.36c	8 15 0	1.46c to 1.49c	6 12 6 to 6 15 0
Sheets, gal., 24 gage, corr.	1.43c	9 5 0	1.54c	7 0 0
Bands and strips	1.47c	9 10 0	.83c to .85c	3 15 0 to 3 17 6
Plain wire, base	1.32c	8 10 0	1.18c	5 7 6
Galvanized wire, base	1.71c	11 0 0	1.38c to 1.40c	6 5 6 to 6 7 6
Wire nails, base	1.71c	11 0 0	1.21c	5 10 0
Tin plate, box 108 lbs.	$ 2.52	0 14 6	$3.20	0 13 2‡

British ferromanganese $72 to $75 delivered Atlantic seaboard, duty-paid German ferromanganese £9 0s 0d ($43.74) f.o.b.

Domestic Prices at Works or Furnace—Last Reported

	£ s d		French Francs		Belgian Francs		Reich Marks
Fdy. pig iron, Si. 2.5	$10.15	2 18 6	$ 9.46	240	$10.32	370	$16.35	69
Basic bessemer pig iron	9.72	2 16 0*	.....	...	9.21	330	17.89	75.50
Furnace coke	2.17	0 12 6	5.71	145	4.46	160	5.07	21.40
Billets	18.65	5 7 6	14.18	360	11.58	415	23.58	99.50
Standard rails	1.28c	8 5 0	1.41c	785	1.57c	1,210	1.36c	127
Merchant bars	1.09c	7 0 0	.90c	500	.65c	490	1.23c	115
Structural shapes	1.36c	8 15 0	.99c	550	.65c	490	1.20c	112.50
Plates, ††¼-in. or 5mm	1.40c	9 0 0	1.17c	650	.77c	590	1.41c	132
Sheets, black, 24 ga. or 0.5mm.	1.36c	8 15 0§	1.33c	740††	.88c	675††	1.64c	153††
Sheets, galv., corr., 24 ga. or 0.5mm	1.41c	9 2 6	2.43c	1,350	1.95c	1,500	4.44c	415
Plain wire	1.32c	8 10 0	1.75c	970	1.95c	1,500	1.90c	178
Bands and strips	1.47c	9 10 0	1.04c	575	.98c	750	1.42c	133

*Basic. †British ship-plates. Continental bridge plates. ‡German. §24-gage. ††1 to 3 mm. basis. British quotations are for basic open-hearth steel, Continental usually for basic-bessemer steel.

British Steel Imports Outweigh Exports in 1931

London — Complete returns of British iron and steel import and export trade for 1931 disclose the fact that for the first time in the history of the industry, imports exceeded exports, and this by no less than 871,341 gross tons.

It is interesting to note that imports of pig iron and ferroalloys in December were below the monthly average for the year, while imports of other iron and steel products were about the average, although less than in November. Comparisons follow, in gross tons:

	IMPORTS		EXPORTS	
Mon. ave.	Pig iron and ferro-alloys	Other iron and steel	Pig iron and ferro-alloys	Other iron and steel
1928	9,935	231,390	37,895	317,210
1929	12,310	222,410	45,430	319,520
1930	26,010	216,355	26,445	236,715
1931	25,450	212,205	16,870	148,240
1931				
Jan.	23,345	198,428	18,743	148,630
Feb.	20,836	156,220	13,840	129,685
March	22,777	187,690	15,836	154,453
April	26,101	167,289	13,707	174,158
May	27,674	200,083	22,032	145,512
June	29,548	216,786	27,301	135,317
July	20,979	210,038	19,408	148,929
Aug.	25,209	176,711	12,173	131,947
Sept.	15,882	204,403	12,823	126,352
Oct.	30,573	245,122	14,272	144,540
Nov.	40,271	338,992	18,325	177,378
Dec.	22,218	244,683	13,961	161,995
Total	305,413	2,546,445	202,421	1,778,896

Machinery

HOPES for revival in equipment demand through automotive activity have been dampened somewhat by delays in Ford releases. However, machinery sales departments in many cases continue to be active in handling quotations and salesmen are covering their territories more actively than during December. Of the scattered business reported this week, that placed by government departments occupies first place. In the Chicago territory some business is expected from the road building machinery industry but as far as actual sales are concerned an order for an $18,000 drilling and boring machine stands out prominently.

New York—While scattered inquiry is slightly improved, sales of machine tool equipment are light and the situation shows little change in the East. General Electric Co. has a fair list out for a New England plant. A number of machinery sales departments are concentrating on this.

Bids are in on equipment for navy yards, including six lathes for various points. General industrial operations show but little change, improvement being spotty.

Worcester, Mass.—New England buyers show no signs of industrial acceleration although several New England manufacturers are finding signs of improving conditions in the machinery market in other sections of the country.

During the week one manufacturer booked a small milling machine for a customer in New York state and two die-casting machines for the Middle West. Demand for machinery of new design overshadows present demand for standard makes. The navy continues to open schedules for lathes for navy yards, the latest calling for two machines for Portsmouth, N. H.

Grinder manufacturers still are engaged in producing machines on Ford orders announced several weeks ago. No other automobile business is pending except a Chrysler inquiry, also previously noted.

Opportunities for foreign business seem to have disappeared. The heavy business which Worcester plants did with Russia, France and Italy last year probably will not be duplicated this year.

Pittsburgh—Inquiry for machine tools holds at its recent quiet rate and is made up largely of the results of sales development work on the part of dealers. Individual items predominate with no large lists appearing.

Orders continue quiet and for some sellers January business was smaller than in December. Quietness in general industrial operations still is an important factor in postponing the closing on pending work.

Cleveland — Conditions in the equipment market have not improved as rapidly as had been hoped. Delay in expected Ford releases on parts and accessories accounts for this in part. However, there are a number of live prospects for machinery and there is some improvement in the sale of small tools.

What few pieces of equipment have been sold seem to tend more toward special designs. Just now there is more activity in building such equipment than in standard lines. Machinery sales departments are active in quoting.

Chicago—No immediate break in the dull machine tool market is foreseen. January sales gained a trifle over the sluggish December market but were so far below normal as to indicate no real trend. Dealers are seeking to revive some of the inquiries that have lapsed.

The only sale of consequence was an $18,000 horizontal drill and boring machine in the Chicago district. This is the largest order placed in some weeks. Several sales of small tools and machines in the $300 to $400 class or less are reported to have been closed.

Expectations are that a road building and equipment manufacturer north of here may order some equipment soon. A number of trade-in possibilities are mentioned by buyers but they are slow to take action on these possibilities.

December Crane Business Better than November

New York—New orders and shipments of electric overhead cranes increased in December, but unfilled volume on Jan. 1 was lower, according to Electric Overhead Crane Institute.

Shipments the closing month of 1931 totaled 26 units with tonnage capacity of 367½, valued at $137,948. This compares with 13 units shipped in November, with tonnage capacity of 312½, valued at $101,695.

New orders in December included 17 units, tonnage capacity 206¾, valued at $70,487. This compares with 13 cranes, tonnage capacity 126½ valued at $44,086 in November.

Unfilled volume Jan. 1 included 26 cranes, tonnage capacity, 843¼, valued at $372,139. On Dec. 1 unfilled business included 35 cranes, tonnage capacity 1004, valued at $435,019.

Exports of Metalworking Machinery

	December		January through December	
	1931	1930	1931	1930
Engine lathes	26	28	496	1053
Turret lathes	17	8	226	404
Other lathes	19	25	684	657
Vertical boring mills and chucking machines	11	23	225	315
Thread-cutting and automatic screw machines	13	22	254	660
Knee and column type milling machines	7	6	151	314
Other milling machines	14	18	452	679
Gear-cutting machines	14	9	380	398
Vertical drilling machines	13	2	321	456
Radial drilling machines	1	3	116	156
Other drilling machines	49	61	1612	1544
Planers and shapers	21	13	304	322
Surface grinding machines	20	8	171	174
External cylindrical grinding machines	15	19	401	509
Internal grinding machines	4	18	248	311
Tool grinding, cutter grinding, and universal grinding machines	61	61	789	1568
Pneumatic portable tools	842	1107	9672	18511
Chucks for machine tools	674	833	9074	21441

Construction and Enterprise

CONCISE, TIMELY BUSINESS BUILDING OPPORTUNITIES IN FIELD OF INDUSTRY

New England

FORESTVILLE, CONN.—Peter Person, care Forestville Mfg. Co., will build a 1-story shop building, 25 x 80 feet, which he will equip with automatic machinery.

New York

BROOKLYN—Perfect Metal Weatherstrip Mfg. Corp. has been incorporated with $10,000 capital, by R. Barko, 2 Lafayette street, New York.

NEW YORK—Commodore Heaters Corp. has been incorporated with $100,000 capital to manufacture heating devices, by M. M. Wood, 233 Broadway.

NEW YORK—Fyrsafe Steel Frame Homes has been incorporated with $20,000 capital to construct steel frame buildings, by S. I. Negall, 220 Broadway.

ROCHESTER — Bower-Rochester Corp. has been incorporated with 100 shares common stock to manufacture springs, by Maurice G. Ellenbogen, Powers building, Rochester.

TROY—DeLuxe Machinery & Mfg. Corp. has been incorporated with $10,000 capital to operate a machine shop business, by F. C. Clessens, Troy.

New Jersey

NEWARK—Acme Bed Co. Inc. has been incorporated with $100,000 capital to manufacture beds, springs and similar products, by N. W. Franzblau, 60 Park place, Newark.

Ohio

PIQUA—L. G. Whitney, city manager, advises further progress in providing a municipal electric light and power plant has been enjoined and letting of contracts awaits hearing on the injunction.

Michigan

DEARBORN—Miller Metal Products Inc. has been incorporated with $5000 capital and 10,000 shares no par value to conduct an iron and steel manufacturing and jobbing business, by Henry J. Miller, 6518 Jonathan avenue, Detroit.

DETROIT—Standard Stanchion Mfg. Co. has been incorporated with $50,000 capital to manufacture and deal in steel stanchions, pipe and boiler tubing, by Albert Langer, 8053 Military avenue, Detroit.

Indiana

SOUTH BEND—Hurwich Iron Co. Inc. has been incorporated with 6000 shares no par value to forge and cast metal, by Maurice L. Hurwich and associates.

Illinois

CHICAGO—Chicago sanitary district, for division D. D., will build a 1-story steel incinerating plant, 53 x 112 feet, at its Stickney, Ill., sewage disposal works. E. W. Sproul Construction Co., 2001 West Pershing road, Chicago, general contractor, is taking subcontracts for building and for machinery.

District of Columbia

WASHINGTON—Bureau of supplies and accounts, navy department, will open bids Feb. 2 for seven traveling, hand-operated cranes, with trolleys and two eye-beam trolleys of 1-ton capacity, Schedule 7247; one milling machine, plain, horizontal type, motor-driven, Schedule 7314; one electric furnace, globar type, with heating units, pedestal, automatic control and pyrometer, Schedule 7304; one universal milling machine, motor-driven, Schedule 7307; one vertical power hammer, motor-driven, Schedule 7302; one drop forging hammer, 2000 pounds, air or steam operation, Schedule 7275; one motor-driven turret lathe, 2¼ x 24 inches, Schedule 7278; bids Feb. 9 for three motor-driven engine lathes, Schedule 7282.

Southern States

MORGAN CITY, LA.—City plans to build waterworks and electric light plant, including oil engine generating units and motor-driven pumps. Cost about $175,000. Bids about Feb. 15. Swanson-McGraw Inc., Balter building, New Orleans, is engineer.

NEW ORLEANS, LA.—Continental Can Co., New York, will build a 3-story concrete addition, 120 x 160 feet, bids to be asked shortly. Fevrot & Livaudais, Hibernia Bank building, are architects.

SHREVEPORT, LA. — Constructing quartermaster, Barksdale field, is receiving bids until Feb. 8 for construction of a sewage pumping station to cost $25,000.

NASHVILLE, TENN. — Phillips-Rutorff Mfg. Co., 1401 Hamilton street, is building a 3-story addition to its enameling plant to give 50 per cent increase in capacity for production of gas ranges and heating appliances. Cost about $25,000.

FAIRMONT, W. VA. — Fairmont Foundry & Mfg. Co., 311 Leona court, recently reorganized with L. J. Carskaden president and general manager, is making some changes and adding to equipment.

HUNTINGTON, W. VA.—Applegate Machine Co. Inc. has been incorporated by Clark Applegate, 908 Third avenue.

Missouri

KANSAS CITY, MO.—Omega Machine Co. has been incorporated by E. E. Harper, 3031 Park street.

ST. LOUIS—Missouri Pump & Equipment Co. is building an office and workshop addition of 4500 square feet at 723 South Sarah street.

ST. LOUIS—Ripplinger Electric & Machine Works has been incorporated by Theodore C. Ripplinger, 4357 Delor street.

ST. LOUIS—St. Louis Steel Products Co., recently organized by J. G. Herman, 523 O'Fallon street, president, will manufacture bar ties for reinforcing rods. (Noted Dec. 21.)

Oklahoma

DURANT, OKLA.—City, D. C. Hathcox mayor, is having plans made for rebuilding and re-equipping its waterworks and power plant station.

OKLAHOMA CITY—Standard Tool Works, box 723, has opened a general machine shop on Southeast Twenty-ninth street. H. D. Kerr is manager.

PICHER — Eagle-Picher Mining & Smelting Co. is taking bids on two structures for its smelting plant here.

Texas

ORANGE, TEX.—Commercial Pulp & Paper Co., successor of Yellow Pine Paper Co., C. A. Keirin chief engineer, plans to rebuild paper mill here, including repair shop for machinery, power plant facilities and conveying and elevating equipment.

MIDLAND—New Mexico Potash & Chemical Co. has been organized by Charles Lamb and W. G. Halthusen to build a potash mining plant in eastern New Mexico.

YOAKUM—Broussard-Warfield Co., Beaumont, Tex., has been given contract by city to build water system, including pumping equipment. Total cost is estimated at $250,000.

Colorado

PUEBLO — Rufus Lowrance, 1125 West Eleventh street, is planning erection of a foundry on West Fourth street, for which he has asked permission from the zoning board.

Pacific Coast

SEATTLE—Loyal Stoker Corp. has been organized with $25,000 capital by A. C. Pattimore, 106 Findlay street, and associates.

Dominion of Canada

SARNIA, ONT.—Baker, Perkins Inc., Saginaw, Mich., is preparing to start work in the spring on a plant here for the manufacture of baking and confectionery machinery, at a cost of about $100,000.

TORONTO, ONT. — Walter Motor Trucks of Canada Ltd. has been incorporated with $40,000 capital by Frank M. Squires, Toronto, to manufacture automotive and other products.